



THE AMERICAN ASSOCIATION OF  
IMMUNOLOGISTS

December 22, 2011

*by email to [publicaccess@ostp.gov](mailto:publicaccess@ostp.gov)*

**Re: FR Doc. 2011-28623**

Dear Sir or Madam,

The American Association of Immunologists (AAI), the largest professional association of immunologists in the world, represents more than 7,400 basic and clinical immunologists. AAI appreciates having this opportunity to submit comments on the November 3, 2011, "Request for Information" (RFI) by the Office of Science and Technology Policy, Executive Office of the President, regarding "**Public Access to Peer-Reviewed Scholarly Publications Resulting from Federally Funded Research.**"

AAI is the owner and publisher of *The Journal of Immunology* (*The JI*), the largest and most highly cited journal in the field. (See <http://www.jimmunol.org/>). *The JI* was first published in 1916 and has been continuously published since then; thus it has been the repository of our profession's scientific advancements and achievements for nearly a century. The publication and stewardship of *The JI* is a core component of our organization's mission. Ensuring its future is as essential to our profession as preserving its past, and we take this responsibility seriously.

*The JI* publishes novel, peer-reviewed articles describing original research findings in all areas of experimental immunology, including innate and adaptive immunity, inflammation, host defense, clinical immunology, autoimmunity and more. The journal's Editorial Board is comprised of 184 editors: 10 Deputy Editors, 52 Section Editors, and 122 Associate Editors. Together with more than 3,600 other practicing scientists from all around the country, they donate enormous time and extraordinary expertise to serving as peer reviewers and/or editors of the nearly 4,000 manuscripts submitted annually for publication in *The JI*.<sup>1</sup> A trained in-house staff ensures that *The JI*, which published 1,572 articles in 2010, solicits high quality peer reviewers for each submitted manuscript; follows up with all reviewers to ensure that each manuscript has received a comprehensive review; works with vendors to ensure correct copy-editing of all articles and with authors on necessary changes; ensures that the text of the articles and all figures and tables are presented in print and online in a clear and accurate manner, and that any supplemental material is published accurately online; works with vendors to shepherd the compiled journal through the printing process and mail the journal to all print subscribers; and ensures that it is posted online – and all of this, twice each month. In addition, the Editor-in-Chief, Executive Editor, Publication Director and others ensure that any allegations of fraud, fabrication or plagiarism are promptly and fully addressed; protect the journal's copyright (often violated through premature posting of manuscripts on NIH's PubMed Central); and identify and stop the systematic downloading of copyrighted material from the journal's website for any unauthorized purpose.

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<sup>1</sup> In 2010 alone, these scientists provided to *The JI* more than 11,000 reviews of newly submitted and/or revised manuscripts.

Publication of *The JI* is a time consuming, costly process,<sup>2</sup> to which AAI members and the immunology profession are devoted. To ensure *The JI*'s future, AAI must - and does - consider carefully the economics of publication: we know we must continue to publish and disseminate cutting edge research to our readers as affordably and quickly as we can. And we do this, year after year, and intend to do this in perpetuity.

Like many scholarly publishers,<sup>3</sup> AAI seeks to provide prompt access to the latest scientific breakthroughs in our field and to provide high quality, reliable services - including peer review (as described above) and commentary - to our authors and readers. *The JI* includes special sections designed to further advance our readers' knowledge: "Cutting Edge",<sup>4</sup> "Brief Reviews",<sup>5</sup> "Pillars of Immunology",<sup>6</sup> "***In This Issue***",<sup>7</sup> "***Translating Immunology***",<sup>8</sup> and "***Letters to the Editor***".<sup>9</sup> ***To foster the rapid dissemination of its contents, The JI makes abstracts available online - at no cost to any reader - immediately upon publication, provides a "publish ahead of print" version ("Next in The JI")<sup>10</sup> available to subscribers almost three weeks ahead of the print version, and provides free public access to the full text of all articles published in The JI twelve months after publication (before twelve months, the full text is under subscription control). In addition, "Immunocasts," podcasts of research highlights from each issue of The JI, are available to anyone without charge at the time the issue is published.***

AAI believes that our commitment to our members, authors, and readers; our scientific expertise; and our long publication experience enable us to both comment on, and assist with, federal efforts to expand public access to scholarly publications that report federally funded research. ***In our view, working in partnership with professional societies and other scholarly publishers offers the federal government the most cost-effective and efficient way of ensuring that private sector, scholarly journals survive, preserving their crucially important service of providing independent, expert peer review (accomplished at publishers' expense) of government-funded scientific research.***

AAI has invested considerable time and resources to expand public access, improve interoperability, and foster publishing innovations. Our investments have created digital platforms with the latest and continually evolving Web capabilities, thus providing researchers with faster and more robust delivery of

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<sup>2</sup> Like any top tier journal, *The JI* is expensive to publish. In 2010, publication costs reached nearly \$5 million.

<sup>3</sup> Scholarly publishers include professional associations/societies, commercial publishers and university presses.

<sup>4</sup> Cutting Edge is the rapid publication section of *The JI*, presenting short reports describing significant advances in an area of immunology. Manuscripts in this section present scientifically sound and novel research in a clear and concise fashion, and contain conclusions of unusual interest to immunologists that are justified from the data presented. Chief criteria for acceptance are scientific novelty and quality, originality, clarity, and conciseness.

<sup>5</sup> *The JI* publishes a small number of short, invited reviews ("Brief Reviews") on a regular basis. They cover a focused area on the advancing edge of immunology and provide a balanced view of current research that can be understood by researchers outside of that specialty.

<sup>6</sup> In the first issue of each month, *The JI* reprints papers that have come to be regarded as classics in the field ("Pillars of Immunology"). An invited commentary accompanies each reprinted article.

<sup>7</sup> A small number of papers regarded by reviewers and editors as the top 10% in their field are highlighted in the "***In This Issue***" section.

<sup>8</sup> The "Translating Immunology" section documents discoveries from the field of immunology that have become effective treatments, drugs or diagnostic devices used in healthcare.

<sup>9</sup> *The JI* publishes letters of general interest which comment on recent work published in *The JI*. The authors of the original work are invited to respond, and both the original letter and the authors' response are published together.

<sup>10</sup> In "Next in *The JI*," *The JI* publishes the final, copyedited, author-approved version of the article online ~2½-3 weeks ahead of the print issue.

scholarly information. We have improved interoperability through new metadata standards, which provide for better information discovery and expanded use of research results. And we have launched a mobile website that is optimized for easy navigation and viewing on small screens to allow web-browsing on mobile devices.

Publishing *The JI*, and providing all of the associated services (including but not limited to providing independent, expert peer review of taxpayer funded research; editing; formatting; and ensuring the integrity of the research reported) is costly and time-consuming, and requires considerable expertise. It is essential, therefore, that any public access policies mandated by the government consider both the value of these activities and their immutable costs. Such policies must also protect publishers' intellectual property rights, to ensure both sustained investment by the private sector and the viability of the publishers' products; and to preserve the confidence of readers who rely on the integrity of the journals' published works.<sup>11</sup>

Finally, before addressing the specific questions raised in the RFI, AAI wishes to express our continued willingness to work with the government on the issues raised in the RFI, and our appreciation for this opportunity to describe the value and importance of *The JI* to our members and to the field of immunology.

AAI does, however, want to express our clear opposition to government mandates which require private sector publishers to make their legally-owned property (i.e., journal manuscripts, published articles and associated data) available online on sites other than our own, or to comply with a government-determined embargo period. These mandates allow the government to take private property without owner authorization or compensation, and threaten the sustainability of our nation's premier peer-review publishing system.

Below are the responses of AAI to the questions raised in the RFI:

- (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?**

AAI is one of thousands of U.S. publishers in myriad disciplines which publish peer-reviewed publications and disseminate them internationally.<sup>12</sup> Subscribers to *The JI* are primarily scientists and the institutions which employ them. Other subscribers include libraries of hospitals, for-profit and non-profit businesses, and government agencies. Because the nature of what is reported in *The JI* is highly technical and discipline specific (as described on page 1, above: "novel, peer-reviewed articles describing original research findings in all areas of experimental immunology, including innate and adaptive immunity,

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<sup>11</sup> The recently enacted America COMPETES Act established a public access policy for research funded by the National Science Foundation (NSF). This policy, as well as the policy currently in place at NIH, should be carefully analyzed to determine which (if either) best accomplishes the goal of ensuring the greatest possible public access without harming scholarly publishers or the scientific enterprise.

<sup>12</sup> The American publishing industry is valued at \$8 billion and employs 50,000 Americans. See "The STM Report: An overview of scientific and scholarly journal publishing," *International Association of Scientific, Technical & Medical Publishers*, September 2009, and an Association PowerPoint presentation noting that of the 110,000 people employed globally, 50,000 are employed in the U.S.

inflammation, host defense, clinical immunology, autoimmunity and more...”), it is unlikely that our “market” could grow beyond those who are already engaged in immunological or related research. The vast majority of these scientists already have access to the full content of *The JI*, either as a benefit of AAI membership or as an employee of an academic institution or independent research institute.

For most members of the general public, print copies of *The JI* are available for purchase, abstracts are available online immediately and at no charge, and the full journal content is available online at no charge after a twelve month embargo period. Also, during the twelve month embargo period, members of the public may purchase a PDF of any article online.<sup>13</sup>

Regarding this question’s implication that increased access could “maximize U.S. economic growth and improve the productivity of the American scientific enterprise,” AAI would point out that increased “free” access is unlikely to benefit the scientific enterprise in the U.S., where virtually every scientist who needs or wants access to *The JI* (and similar scholarly journals) already has it. Rather, increased “free” access is likely to benefit scientists in other nations,<sup>14</sup> whether allies or enemies. In some instances, this will enhance international cooperation in the sciences, but it is not necessarily beneficial to the U.S. economy as even our friendly competitors will gladly take our research findings for free.<sup>15</sup>

Consequently, what federal agencies can do to help publishers grow new markets is to ***not*** mandate public access to peer-reviewed publications; foreign markets represent our best and probably only new market to tap. Yet there is no need for foreign scientists or institutions to subscribe to our publications if the U.S. government makes the peer-reviewed articles that they seek available at no charge.<sup>16</sup> Neither publishers, nor the U.S. scientific enterprise, nor the U.S. taxpayer benefits from the “giving away” of our peer-reviewed publications.

To maximize U.S. economic growth and improve the productivity of the American scientific enterprise, federal agencies should support the vigorous enforcement of publishers’ intellectual property rights, including copyright, and assist publishers in preventing online piracy and unauthorized reuse.

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<sup>13</sup> Members of the public may purchase a copy of any article from *The JI* for \$10, or purchase access to the entire online archive for two weeks for \$40. See our longstanding policy at: <http://www.jimmunol.org/help/features/major-features/pay-for-access>

<sup>14</sup> According to NIH’s PubMedCentral, two-thirds of its users are from other countries. Letter from Susan Cornell, J.D., NIH Freedom of Information Act (FOIA) Officer, to Allan Adler, Vice President for Legal and Government Affairs, Association of American Publishers (May 19, 2011).

<sup>15</sup> House Energy and Commerce Committee Subcommittee on Health Chairman Joe Pitts, in a letter to NIH Director Francis Collins, M.D., Ph.D., expressed concern that “[th]e NIH Public Access Policy may undermine the competitiveness of the STM publishing industry.” <http://www.pspcentral.org/documents/LettertoNIH111011.pdf> In that letter, he sought additional information on the NIH Public Access Policy, PubMedCentral, and “its impact on the science, technology and medical publishing fields,” including any evidence that NIH has “to support [its] claim... that PMC is ‘accelerating scientific discovery in the biomedical sciences.’”

<sup>16</sup> If public access is mandated and publishers have to replace lost subscription revenue, they will be forced to impose additional charges on authors in order to cover the cost of peer review and publishing.

Finally, the federal government should adopt policies which support the wide variety of publishing models; this will foster competition between - and innovation by - publishers, likely resulting in greater access to a larger audience.

**(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?**

The federal government should not adopt mandates which take or compromise the private sector's intellectual property. Rather, the government should set the example of respecting the rights of copyright holders, and, if necessary, providing fair compensation. Scholarly publishers expect the federal government to protect and abide by publishers' constitutional rights: the federal government's unauthorized taking of property is surpassed only by its enabling of third parties to engage in piracy and the unauthorized dissemination of copyrighted works.

As was recognized by our founding fathers, who gave Congress the power "To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries,"<sup>17</sup> copyright is a fundamental tool to foster innovation and creativity. Laws or policies which undermine this right are particularly troubling when they have the imprimatur of the federal government. The NIH Public Access Policy requires that "all investigators funded by the NIH submit or have submitted for them to the NLM's PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, that the NIH shall implement the public access policy in a manner consistent with copyright law." Although AAI appreciates that the NIH embargo period is consistent with the policy of *The JI*, and that the law recognizes the importance of respecting copyright, the mandate itself allows the government to take copyrighted works and make them available for its own purposes, without the permission of the copyright holder. Further, the policy duplicates what the private sector is already doing quite effectively; reroutes traffic away from journal websites; allows anyone in the world (not just U.S. taxpayers, who funded the research presented in the final published article) to "own" copyrighted materials without the permission of the copyright holder; and enables the posting of copyrighted materials on rogue sites. Although PMC could play a valuable role in facilitating publisher efforts to disseminate scholarly publications (for example, through linking to journals on publisher websites),<sup>18</sup> the policy as currently implemented actually undermines U.S. private sector publishing, contributing to a loss of subscribers and significant revenue.

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<sup>17</sup> U.S. Constitution, [Article I Section 8](#)

<sup>18</sup> In 2005, AAI and 56 other not-for-profit scientific publishers offered to NIH a "Linking Proposal:" to provide seamless links on PubMed Central to the journals' websites, enabling readers to access the full text of any article funded by NIH (and in many instances, the full text of all articles published in the journal, irrespective of funding source). This proposal would provide the public with free access to all published articles funded by the NIH; provide access to the final, copy-edited articles; address publishers' copyright concerns; satisfy current law; and comply with copyright law by ensuring that an article cannot be posted before the journals' embargo period is over. It would also be cost effective, since the NIH would not have to maintain a repository, educate grantees about compliance and copyright, or monitor for compliance. Despite its many advantages, and despite subsequent offers from publishers to consider ways to satisfy NIH's need for a repository of all NIH funded works (i.e. to help NIH populate a "dark archive" for internal NIH use only), NIH rejected the publishers' Proposal.

**(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?**

AAI is deeply concerned about the increasingly aggressive efforts of federal agencies to seek control and custody of privately owned, scholarly, peer-reviewed publications. Although the concept is superficially appealing - that a government agency would maintain a database of all the research which it has fully or partially funded - AAI has deep concerns about the ultimate result of this effort, which is to control not only the research findings, but also the final product reporting that research (which product was made possible through essential services provided - and paid for - by the private sector).

As indicated above, the publication of *The JI* is a costly endeavor.<sup>19</sup> AAI and other professional societies which publish scholarly journals support their journal enterprise as an essential part of their mission. We know the cost, and wonder why, in this time of serious fiscal constraint, the federal government would create, and seek to expand, the use of central federal repositories, which are duplicative and inferior to publisher repositories (which include the full content of what is published, not just the content which is supported by federal funds). The notion that a government repository, which depends on an uncertain federal appropriation process, is more “reliable” or “permanent” than one managed by the private sector (in the case of AAI, for almost 100 years) is no longer valid.

AAI is also concerned that a centralized approach will (and has) increased administrative burden for our journal and our authors. Manuscripts accepted for publication in *The JI* are now submitted by *The JI* to PMC on behalf of the author, which adds staffing time and its associated cost. In addition, *The JI* staff must monitor PMC to ensure that articles are not posted prior to the expiration of the embargo period.

Despite these concerns, AAI recognizes that certain databases, including PubMed, Genbank, GEO, and the Protein Database, are useful tools for researchers and should continue to be supported. In addition, the NLM XML DTD has proven to be a valuable common tagging format for exchange of journal content. The federal government can continue to support projects such as these and new ones as the need arises, e.g., MIATA (<http://www.miataproject.org/>) is a new project that the government could consider supporting.

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<sup>19</sup> See Footnote 2, above.

As a professional association, AAI is in close touch with its members and therefore uniquely positioned to understand researchers' needs in relation to delivery of scholarly information. Although we are a not-for-profit organization, we must - like our for-profit competitors – have a viable business model if we are to remain operational. Part of our business model is to adopt innovative approaches to delivering information and making it more accessible to its users. Some innovations include:

- *The use of DOIs* (Digital Object Identifiers through CrossRef)<sup>20</sup>: *The JI* enables interlinking of published articles via DOIs, a tool used by some scholarly publishers to “uniquely” identify content.
- *Linking opportunities*: *The JI* links from articles to relevant databases at the National Center for Biot Compliance with COUNTER requirements: All content in *The JI* is compliant with the latest COUNTER requirements. COUNTER (Counting Online Usage of Networked Electronic Resources) resulted from a collaboration among publishers, librarians and database providers, who created standards for measuring online usage data. COUNTER provides reliable usage data to librarians and publishers, allowing each to better understand how the online content is being used.

AAI will continue to strive to provide innovative products and services, unless our financial livelihood is undermined by harmful government policies.

**(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?**

Although efforts by publishers vary, all are undoubtedly concerned about, and committed to, archiving their product and ensuring its long-term accessibility and usefulness. The stewardship of archiving is secure when the publisher is secure. In addition, several entities already exist to ensure long-term availability of publications should a publisher go out of business (e.g., 1) CLOCKS <http://www.clockss.org/clockss/Home> - a not-for-profit joint venture started by libraries and publishers committed to ensuring long-term access to scholarly publications in digital format, and 2) Portico <http://www.portico.org/digital-preservation/> - a digital preservation service provided by ITHAKA, a not-for-profit organization with a mission to help the academic community use digital technologies to preserve the scholarly record. Articles are then all freely available to the public.

**(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?**

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<sup>20</sup> CrossRef is a not-for-profit group founded by publishers in 2000 which maintains 50 million items (including articles, supplemental data, etc.)(see (<http://www.crossref.org/01company/pr/news111511.html>)). Through CrossRef, over 3500 publishers and societies assign Digital Object Identifiers (DOIs) to published content items, enabling seamless navigation of the research literature (see <http://www.crossref.org/01company/06publishers.html>), CrossRef enables users to link to the full text of a referenced article from the bibliography of another article.

AAI and many scholarly publishers have devoted extensive resources to promoting wide dissemination, and facilitating the use, of their publications. To encourage discoverability and interoperability, *The JI* participates in CrossRef, which provides users with seamless navigation of the research literature. (See *Footnote 20*) *The JI* is also crawled by major search engines such as Yahoo!, Google and Google Scholar, which further improves discoverability.

AAI makes the contents of *The JI* available online through HighWire Press, a subsidiary of Stanford University Libraries, which hosts the online platform for *The JI*. As mentioned in response to Question 3 (above), through HighWire, AAI has adopted COUNTER standards, a uniform way of counting downloads to enable librarians to analyze usage data. In addition, microdata markup tags,<sup>21</sup> which are key to the semantic web, have recently been added to all journal article pages, improving the results of search engines which crawl the scholarly content.

Federal agencies can best foster private innovation in publishing by avoiding mandates, assigning liaisons within federal agencies to work with publishers on removing administrative obstacles, and continuing support for items that need a centralized system, such as those mentioned in Answer 3 (above).

**(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?**

Federal agencies should facilitate private sector efforts to maximize public access to the federally-funded research in which taxpayers invest in a cost-effective and legal manner. It is important that the government remember that its investment is in research and not in publishing.<sup>22</sup> Publishers invest in peer-review, editing, copy-editing, web-hosting, and numerous other services which transform the research results into a publishable article. Although federal agencies do not have the right, and should not have required publishers to provide public access, most private sector publishers already do make their articles available at no cost to the public, with varying embargo periods, because it is in their interest for their journals to be widely read.

Federal agencies should work collaboratively with the private sector to provide increased public access to both the findings of taxpayer-funded research and the final, peer-reviewed, value-added content available in private scholarly journals. Through such efforts, the government could also enhance interoperability between funding agencies and the content of private sector journals, whether or not that content is funded by a federal agency.

**(7) Besides scholarly journal articles, should other types of peer-reviewed publications resulting from federally funded research, such as book**

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<sup>21</sup> This addresses the June 2011 guidelines issued by microdata [www.schema.org](http://www.schema.org), a joint initiative of Google, Bing and Yahoo!

<sup>22</sup> NIH grants provide grantee-authors with some funding for publication charges. But this funding does not cover the publisher's costs.

## **chapters and conference proceedings, be covered by these public access policies?**

No. Private sector publishers also invest substantially in these other types of peer-reviewed publications. The same arguments which apply to scholarly articles apply to these publications, and a federal mandate requiring public access to these publications is an expropriation of private property.

### **(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?**

In general, AAI believes that the copyright holder (in most cases, the publisher) has the right to determine the embargo period for a peer-reviewed manuscript or article. Publishers must be able to select the business model and embargo period which best suits the needs and demands of their field, with the goal of fostering accessibility without jeopardizing their journal's viability.<sup>23</sup>

AAI has determined that for *The JI*, a twelve month embargo period is appropriate as it allows us to recover a portion of our costs by retaining the majority of our subscribers.<sup>24</sup> If the federal government were to require a shorter embargo period, it could erode our subscription base and potentially bankrupt *The JI*.

The cost of publishing *The JI*, the rates we charge our subscribers, and the costs to authors to publish in *The JI* are dynamic, varying from year to year and reflecting changes in the marketplace. Prices for supplies, such as paper, change considerably over time, just as new approaches, services, and technology<sup>25</sup> affect costs. Any excess revenue is used for product improvement, including new technologies.

AAI appreciates having this opportunity to comment, and thanks you in advance for considering our views.

Sincerely,

M. Michele Hogan, Ph.D.  
Executive Director  
The American Association of Immunologists  
Executive Editor, *The Journal of Immunology*

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<sup>23</sup> There is not one embargo period that will work for all disciplines, as each journal and field has different life spans. For example, articles published in the *The JI* have a cited half-life of 7 years, whereas other journals may have much shorter or longer cited half-lives.

<sup>24</sup> *The JI* has lost a considerable number of subscribers in recent years, which we believe is due to public access policies that undermine the need for a subscription.

<sup>25</sup> Since the 1990's, *The JI* has invested heavily in providing content in the digital arena. It was one of the first journals to put content online, beginning with its abstracts and *Cutting Edge* section, followed by full content in January 1998. Over the following decade, all content back to the first issue of *The JI* in 1916 was digitized and made available online. Working with others in the industry, *The JI* has dramatically improved functionality and efficiency for readers, who can now perform complex searches, immediately retrieve and either save to their computers or print full text articles, link instantly to other cited articles, export text and references to other databases and programs, and receive e-mail alerts or RSS feeds when new journal issues are released. In addition to its large screen website, *The JI* also has a website optimized for reading on mobile devices, allowing readers to use their time with even greater efficiency.