Constants and scientific progress

Scientists like constants (a personal favorite is Avogadro’s number). It is no wonder, because not only does defining a constant represent a major scientific breakthrough, but as human beings we like things we can rely on, things that stay the same and that bring us consistency, stability, and a way to understand ourselves and the world around us. On the other hand, scientists create and welcome change: science itself is the embodiment of change and progress, i.e., changes in knowledge brought about by changes in technology that allow us to answer old questions more precisely and explore new questions previously thought impenetrable. Furthermore, who gripes about making a major breakthrough that leads to new thinking, or going from a postdoc to a real job or from an untenured to a tenured position? Most people embrace change when a clearly defined better future is seen as resulting from the change and resist change when the impacts are uncertain, ill-defined, and murky. The view of change involving our cultural institutions—ideals and processes we are comfortable with, familiar with, and that have served many of us well—usually falls into the latter category and is typically resisted. It is why our cultural institutions are often the most formidable barriers to the progress in the science that they are meant to foster.

Physiological Genomics is attempting to further progress in research by creating a new style of peer-reviewed scientific publication: online prior to print. This is necessitating making some changes, such as looking on your computer instead of in your mailbox, and downloading articles to your printer instead of photocopying at the library. Most welcome these changes. Additionally, in conceptualizing this new journal, we opted to fully embrace the new technology of the World Wide Web and to use it as our primary “press,” which is creating a cultural shift. It is our belief, however, that our goal of speeding dissemination of information is best accomplished with this publication model. Publishing online and printing archivally gives us the needed flexibility to provide content weeks and months ahead of the standard model, while still providing a second route of access and a traditional permanent record. Furthermore, it gives us the freedom to focus on enhancing the online content by allowing authors to present results and ideas in ways impossible to achieve in print.

Even though an archival journal is printed at some point after the online version is released, the online version enjoys all the privileges and responsibilities of a traditional journal and represents the official publication of the material. Medline indexes online journals; the URL and release date can be cited in future references to articles; and the PDF versions of articles can be printed out and shared as reprints before the printed journal is available. Also, each article is assigned a traditional citation to reflect its archival print version.

Genomics is possible in large part because of computing, information, and Internet technology, and it is changing the pace of biology. To enable our authors and readers to stay up to speed, we have maximally embraced the use of this technology. We realize for some the future of online publishing appears murky, yet many others are impatient to reap the benefits of the speed and flexibility this technology offers. We believe that even those having difficulty with this change will soon see that progressing to this new model of publication will soon be looked upon as an obvious, natural transition that enhances and fosters scientific progress. We recognize that change can be difficult simply by virtue of creating new operations that must be mastered. Thus we are working to make this transition as simple and smooth as possible.

Just as we are certain things will change, we are certain Physiological Genomics is here, and online to stay, with the full support and backing of the American Physiological Society, a nonprofit societal publisher with more than 100 years of publishing experience. When the scientific community starts questioning why it took so long to adopt publishing online prior to print, we will be able to proudly point to Physiological Genomics and say we lead the way.

Victor Dzau
Editor in Chief, Physiological Genomics

Martin Frank
Executive Director, American Physiological Society

Margaret Reich
Publications Manager, American Physiological Society

M. J. Finley Austin
Deputy Editor, Physiological Genomics

Ruedi Aebersold
Allen Cowley
David Housman
Richard Mulligan
Robert Rosenberg
Senior Editors, Physiological Genomics

---

Article published online before print. See web site for date of publication (http://physiolgenomics.physiology.org).