

## **Open Access—Pass the Buck**

Maria Leptin

Published in:

Science 16 Mar 2012: Vol. 335, Issue 6074, pp. 1279

DOI: 10.1126/science.1220395

Peer-reviewed scientific publishing serves the research community by verifying the validity of research results, disseminating the findings, and archiving them in a stable and accessible form. Over the past decade, “open access” has gained momentum as a model for scientific publishing, intended to make results freely accessible to the scientific community and to the public on the Internet. Controversy over public access to research continues to escalate. For example, the dueling proposals recently introduced in the United States Congress could have reverberations world-wide: The Federal Research Public Access Act would require articles resulting from research funded by any federal agency to be made publicly available six months after publication, whereas the Research Works Act would prohibit such mandates.

Most scientists support the concept of open access. But there is still much debate over the economics and potential consequences of open access among researchers, publishers, universities, funding agencies, and governments. As the Director of the European Molecular Biology Organization (EMBO), I discuss this topic extensively with editors of the journals that it publishes, as well as with the community of EMBO researchers. Any transition to open access on a large scale will require a clear understanding of the financial challenges that will be faced. Put simply, publishing costs money and open access does not mean “for free”—someone must foot the bill. Author fees now range from \$1,000 to \$5,000 per article, but some journals could require a fee of \$10,000 or more to maintain open access publishing. The cost depends largely on the proportion of submitted articles accepted by a journal. For example, if a journal evaluates one hundred articles and publishes all of them at the price of \$1,000 each, it will earn \$100,000. However, if it is highly selective with an acceptance rate of only 15%, the journal still has to evaluate every article, yet it now earns only \$15,000. Thus, in the absence of external support, an open access journal has to be either selective and expensive, or inexpensive but less selective. Currently, highly selective journals running in the open access mode struggle to break even, whereas large volume, low selectivity open access publishing generates substantial profit.

Open access was driven in part by anger at the greed, real or perceived, of commercial publishers who were seen to exploit tax-funded research and volunteer academic referees to generate profits. Scientists have embraced open access journals as an appealing alternative. But profit does not necessarily go only into the pockets of the publisher. Professional

societies and not-for-profit publishers feed income from their journals back into scientific communities, for example by providing travel stipends for young researchers. Furthermore, moving from subscription-based to author-pays economics does not abolish the potential for profit. A move to open access means that professional societies will require other funding sources for many of the scientific activities that they finance. Those open access journals that are subsidized face challenges when funding stops. One successful model uses the income from less selective open access journals to finance the highly selective ones.

At EMBO, a nonprofit organization with the mission to support top-level research in the life sciences, we publish four journals, one that is open access (*Molecular Systems Biology*), and one *EMBO Molecular Medicine*, which converted last week to open access. Converting *The EMBO Journal* and *EMBO reports* to open access at a price that is affordable to authors will have to await changes in funding options for open access fees. I believe that an overhaul of the financing of publishing is required. Research funders, intergovernmental agencies or even governments may need to contemplate direct financing of the costs for open access publishing to minimize the risk of unintended, detrimental consequences.

The economics of open access are crucial, but they should not dominate how we think about scientific publishing. We must protect the core principles of scientific publishing no matter what the model: the critical, independent scrutiny of scientific claims and long-term archiving of validated research.

Maria Leptin is the director of EMBO, Heidelberg, Germany.

Email: [director@embo.org](mailto:director@embo.org)