ADVANCING ACCESS
A CONVERSATION ABOUT OPEN ACCESS PUBLISHING & PREPRINTS IN THE BIOMOLECULAR SCIENCES

Randy Schekman, PhD  Richard Sever, PhD

Dr. Randy Schekman is a Professor in the Department of Molecular and Cell Biology, University of California, Berkeley, and an Investigator of the Howard Hughes Medical Institute. He studied the enzymology of DNA replication as a graduate student with Arthur Kornberg at Stanford University. His current interest in cellular membranes developed during a postdoctoral period with S. J. Singer at the University of California, San Diego. Schekman’s laboratory investigates the mechanism of membrane protein traffic in the secretory pathway in eukaryotic cells. In recent years his lab has turned to aspects of vesicular traffic in human cells, most recently on the biogenesis and sorting of small RNAs into extracellular vesicles.

Among his awards are the Gairdner International Award, the Albert Lasker Award in Basic Medical Research and the Nobel Prize in Physiology or Medicine, which he shared with James Rothman and Thomas Südhof. From 2006 - 2011 he served as Editor-in-Chief of the Proceedings of the NAS. In 2011, he founded and until 2019 served as the Editor-in-Chief of the Open Access journal, eLife, sponsored by the HHMI, Wellcome Trust and the Max Planck Society. Beginning in 2018, Schekman assumed a leadership role in an effort supported by the Sergey Brin Family Foundation to identify and support basic research on the mechanisms of Parkinson’s Disease initiation and progression.


After receiving a degree in Biochemistry from Oxford University, Richard obtained his PhD at the MRC Laboratory of Molecular Biology in Cambridge, UK. He then moved into editorial work, first as an editor at Current Opinion in Cell Biology and later Trends in Biochemical Sciences. Richard subsequently served as Executive Editor of Journal of Cell Science, before moving to Cold Spring Harbor Laboratory in 2008. In 2022, he was awarded an honorary DSc from Cold Spring Harbor School of Biological Sciences in recognition of his work to promote scientific communication.

The future of publication is open access

Most of the scientific research conducted around the world is supported by government funds — that is to say, by taxpayer dollars. Yet much of the information that results from such funding is not publicly available outside of research institutions that can afford expensive subscription-based journals. Instead, students, doctors, researchers and the public often have to pay a fee of some $40 per article to read the latest scientific research. As a result, physicians, for instance, may not be able to read a paper with direct relevance to their clinical practice. Having paid taxes to support the work, citizens should reap the benefit of that investment. Those benefits include the accelerated advancement of science that occurs when scientists can more easily build on the research of others.

Open access is the solution. Unfortunately, commercial publishers have been slow to adopt the open access model for fear that it might reduce their sizable profit margins. To address this problem, Plan S, the world’s largest scientific publisher, Elsevier, for example, enjoys a profit margin of about 40 percent for its publishing division — larger than that of nearly every other publicly traded corporation in the world.

Plan S is an initiative for Open Access publishing that was launched in September 2018. The plan is supported by cOAlition S, an international consortium of research funders. Plan S requires that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms. Several major private funding agencies (e.g. Howard Hughes Medical Institute, Gates Foundation and the Wellcome Trust) have embraced plan S for their investigators. Many publishers, particularly commercial organizations, object to the rapid time line and financial considerations implicit in plan S. However, a number of non-commercial journals published by scientific societies and University presses (EMBO J, PNAS, J. Cell Biol., J. Biol. Chem., The Plant Cell) offer an open access option for an additional fee. These fees could form the basis of negotiation with University libraries and funding agencies on complete open access. Fortunately, the federal government has now mandated open access for all federally funded research to be fully implemented by 2024. The future is now just around the corner!

Communicating at the speed of science

The traditional publication process slows dissemination of new research because of delays due to peer review and manuscript revision. Preprint servers speed things up by distributing preprints immediately after submission for evaluation. bioRxiv and medRxiv have brought this approach to the life sciences and have played a critical role in the COVID-19 pandemic, allowing scientists to share new discoveries about SARS-CoV-2, virology, host immune responses, and COVID-19 treatments immediately with other researchers from all around the world. Preprints allow researchers to receive feedback and provide evidence of productivity long before formal publication, which is particularly beneficial for early career researchers. Decoupling of dissemination via bioRxiv and medRxiv is also encouraging new initiatives that experiment with the peer review process and point to a more open and inclusive publishing ecosystem.

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