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Building a Public Library of Science

IUISC 2005

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STM publishing is changing - the promise of the internet

- Reduced costs, global distribution (one copy serves all who connect)
- Potential for Archiving and Searching new and old literature
- Improved format for data presentation, opportunities for other novel features
- Text- and data-mining



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But there are problems

- Online journals are available only to subscribers
- Libraries are struggling to provide access to all required journals
- Site licensing is complex and restrictive
- Big deals



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Vol. 41 Issue 3 Page 413 June 2004
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- Items 1 - 20 of 2325 Page 1 of 117 Next
- 1: [O'donoghue K, Penedo JC, Kelly JM, Kruger PE.](#)
Photophysical study of a family of [Ru(phen)(2)(Me(n)dpq)](2+) complexes in different solvents and DNA: a specific water effect promoted by methyl substitution.
Dalton Trans. 2005 Mar 21;(6):1123-8. Epub 2005 Feb 18.
PMID: 15739016 [PubMed - in process]
 - 2: [Leary AC, Stote RM, Breedt HJ, O'brien J, Buckley B.](#)
Pharmacokinetics and pharmacodynamics of intranasal insulin administered to healthy subjects in escalating doses.
Diabetes Technol Ther. 2005 Feb;7(1):124-30.
PMID: 15738710 [PubMed - in process]
 - 3: [Horan B, Dillon P, Faverdin P, Delaby L, Buckley F, Rath M.](#)
The interaction of strain of holstein-friesian cows and pasture-based feed systems on milk yield, body weight, and body condition score.
J Dairy Sci. 2005 Mar;88(3):1231-43.
PMID: 15738257 [PubMed - in process]

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Page 1 of 7 Next

- 1: [Doyle F, De La Harpe D, McGee H, Shelley E, Conroy R.](#) [Related Articles, Links](#)
Nine-year comparison of presentation and management of acute coronary syndromes in Ireland: a national cross-sectional survey. *BMC Cardiovasc Disord.* 2005 Feb 11;5(1):5. PMID: 15707497 [PubMed - in process]
- 2: [Riley D, Angulo-Gareta JJ, Khattak FY, Lamb MJ, Foster PS, Divali EJ, Hooker CJ, Langley AJ, Clarke RJ, Neely D.](#) [Related Articles, Links](#)
Kalpha yields from Ti foils irradiated with ultrashort laser pulses. *Phys Rev E Stat Nonlin Soft Matter Phys.* 2005 Jan;71(1-2):016406. Epub 2005 Jan 14. PMID: 15697734 [PubMed - as supplied by publisher]
- 3: [Clarke P, Cuiv PO, O'Connell M.](#) [Related Articles, Links](#)
Novel mobilizable prokaryotic two-hybrid system vectors for high-throughput protein interaction mapping in Escherichia coli by bacterial conjugation. *Nucleic Acids Res.* 2005 Feb 01;33(2):e18. PMID: 15687376 [PubMed - indexed for MEDLINE]
- 4: [Cronin M, Domegan L, Thornton L, Fitzgerald M, Hopkins S, O Lorcain P, Creamer E, O'flanagan D.](#) [Related Articles, Links](#)



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STM publishers are doing well



- \$7billion dollar industry
- Substantial profits
- Fastest growing sub-sector of the media industry for the past 15 years

(Morgan Stanley, 2002)



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Dominance of commercial publishers

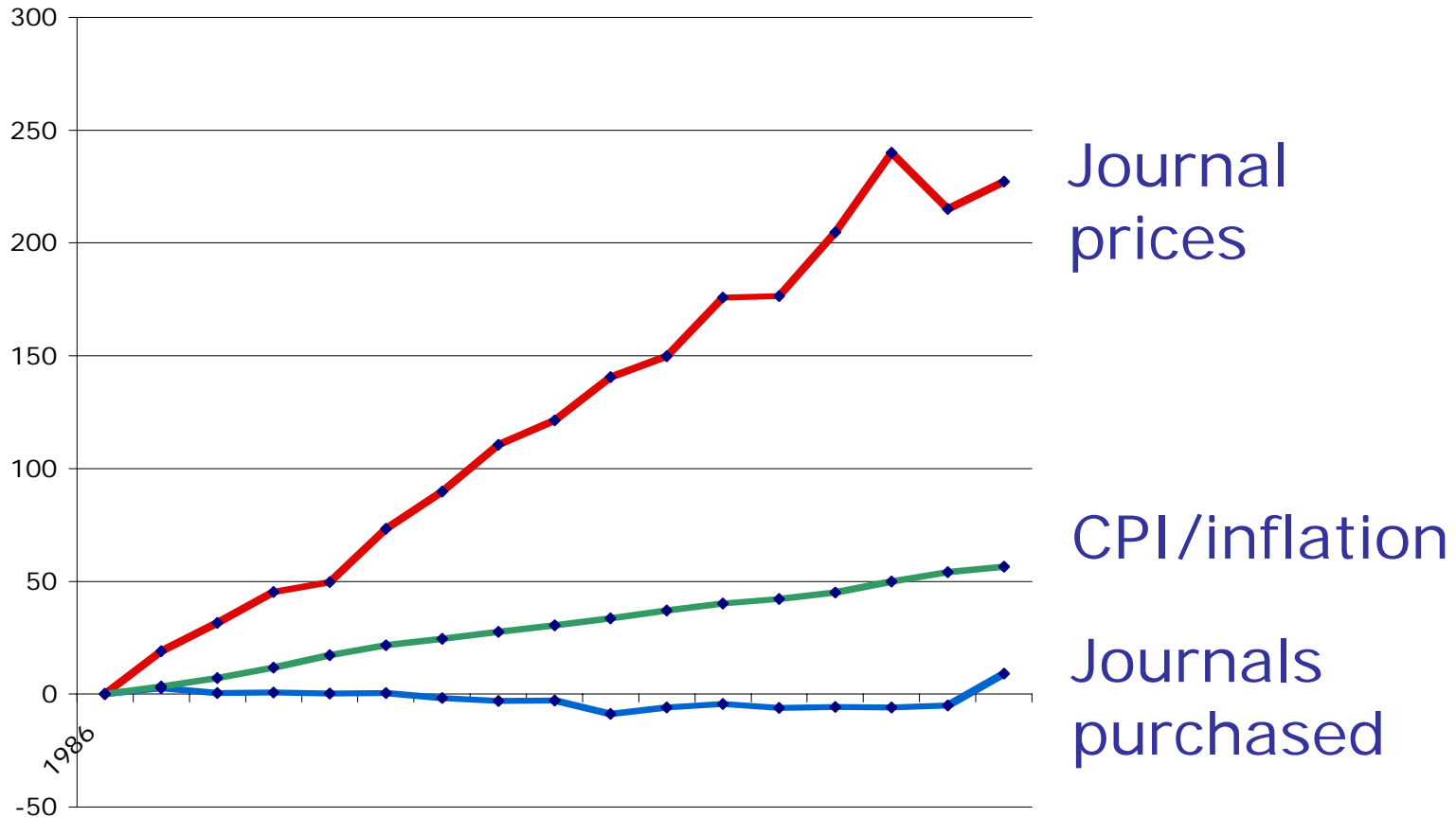
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|------------------|-------------|------------|
| Elsevier Science | 1347 | 25 |
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| OTHERS | 2031 | 43 |



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The journals crisis



Source: Association of Research Libraries



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Office of Fair Trading, 2002

- “There is evidence to suggest that the market for STM journals may not be working well.”
- “Many commercial journal prices appear high, at the expense of education and research institutions.”
- “...it remains to be seen whether market forces...will remedy the problems that may exist.”

*UK response to proposed merger
of Elsevier and Harcourt*

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Why market forces don't work

- Each paper is unique and every journal a monopoly
- Researchers are cushioned from the real cost of publication
- Funding for research and research output often split between different organisations and funding agencies.



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PLoS – a brief history

- Founded in October, 2000
- Circulated an open letter urging publishers to increase access to research literature
- >30,000 signatories
- Some positive effects, but overall response from publishers fell short of demands
- In December, 2002, \$9million grant from Moore Foundation to launch open access journals.

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What is open access?

- Free and unrestricted access online
- Readers/users are licensed to download, print, copy, redistribute, etc.
- Author retains copyright (Creative Commons Licence)
- Papers are deposited in a public online database

Based on the Bethesda Principles, April 2003

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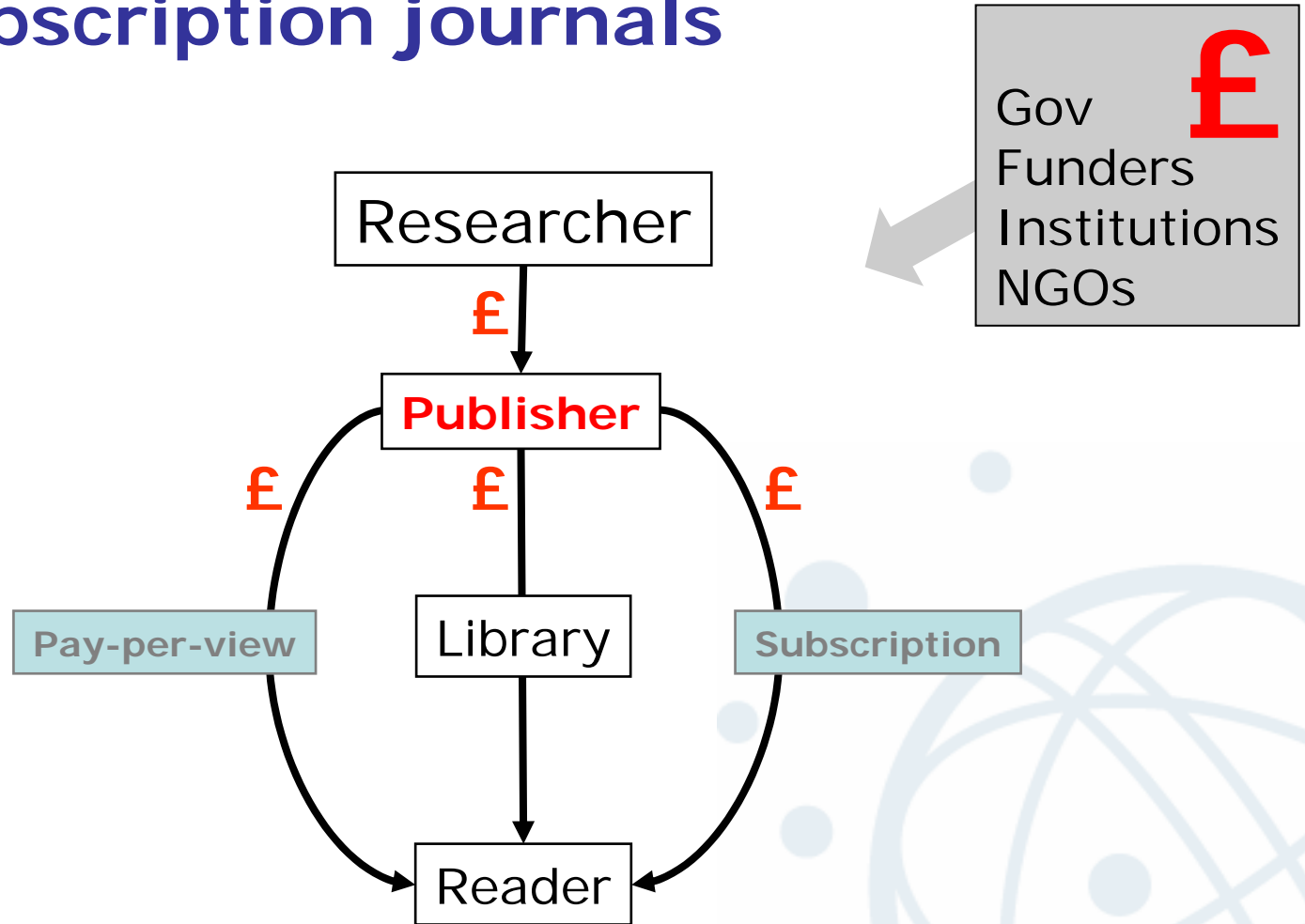
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Subscription journals



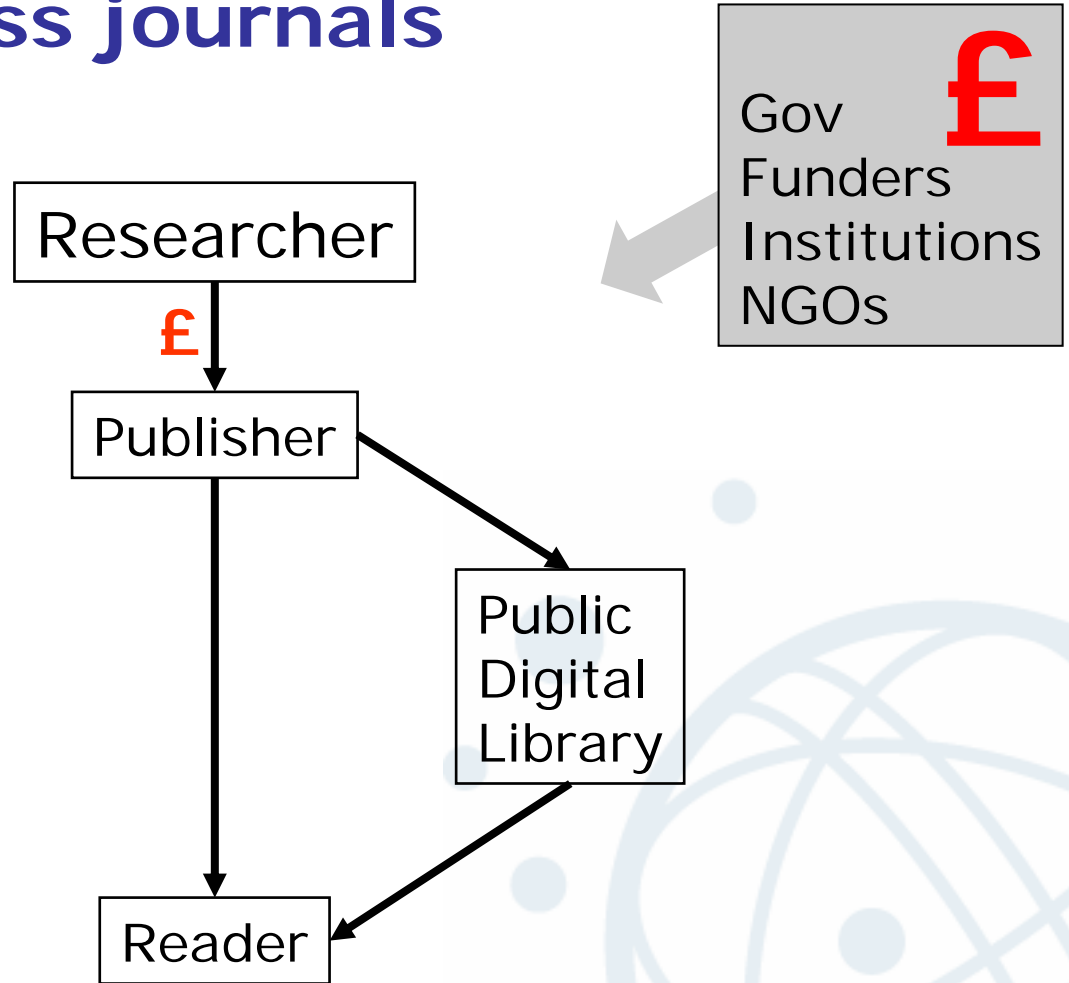


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Open access journals

Publishing is the final step in a research project





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Why is open access important?

- Maximum impact for authors
access to the largest possible audience
- New ways to access and use literature
full-text searching and mining
- Greatly expanded access to research
for scientists, educators, physicians, the public, NGOs,
developing countries
- An effective publishing market
market forces keep prices in check

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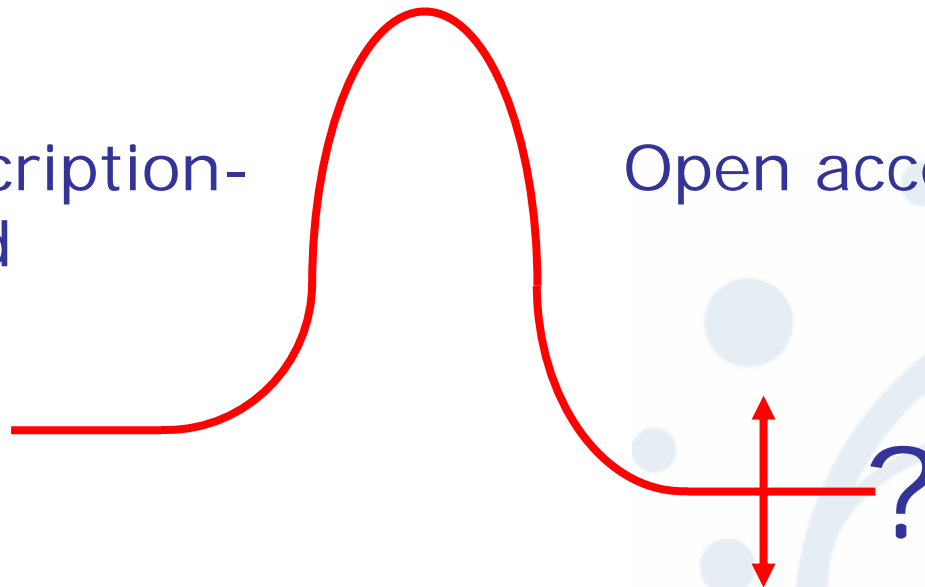


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Transition state economics

Subscription-
based



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Barriers to open access

- Publishers - commercial success
- Scientific Societies - publishing supports them
- Authors - submitting to a new journal
- Funding agencies - don't currently fund publishing
- Libraries - funding uncertainties

"Based on the 2004 budget, total income (and expenditure) was £1250k. Roughly 75% of total income comes from journals (£900k), but running the journals is only 25% of total expenditure (£300k)"

Jill Lancaster, BES debate



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Catalysts for change

- Open access journals - BMC, PLoS
- Experimentation amongst publishers – PNAS, ESA, OUP, APS, COB, Springer, Blackwell
- Policy change in funding agencies – NIH, HHMI, Wellcome Trust, Berlin Declaration
- Governments? – UK Inquiry
- Other organizations - SPARC, JISC, UN WSIS, EU
- Open letter signed by 25 Nobel Laureates
- Institutions, libraries
- Pioneer authors



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The Wellcome Trust

- Analysis of publishing, 1995-99
- 16,646 papers
- Total funding £1.5 billion
- Assume papers cost £1500
- Costs of publishing represent 1.7% costs of research

Sources:

Wellcome Trust

Research Outputs Database

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PLoS Publishing strategy

- Launch two high quality open access journals to rival existing top tier journals.
- PLoS Biology in October, 2003
- PLoS Medicine in October 2004
- Then launch more specialist open access journals
- Stimulate and partner other organizations to do the same

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Basic information

- Launched Oct 2003 (IF in June 2005)
- All the qualities of a top-tier journal
- Online journal has primacy
- Monthly issues
- Publication charge \$1500
- Print subscription at cost



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ISI

"We are tracking some of the newest OA titles with great interest, as their early citation performance has been exceptional. *PLOS Biology*, launched in the latter part of 2003 achieved rapid and wide-spread notice. This is well-reflected in its year-to-date citations in 2004. As of September 24, 2004, ISI citation databases had indexed over 400 total citations to the title."

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Fifty-one years ago, James Watson and Francis Crick made headlines with their discovery of the structure of DNA. It was an achievement that forever altered our understanding of the world and secured their place in the annals of scientific history.

One year ago, at the launch of *PLoS Biology*, Dr. Watson was asked if he would do anything differently today.

He replied, yes—today he'd publish with the Public Library of Science. That's because Dr. Watson understands the importance of open-access publishing and the enormous potential it has to advance scientific and medical knowledge.

He's not the only one. Within its first year of publication, *PLoS Biology* has attracted authors and readers from among leading scientists the world over.

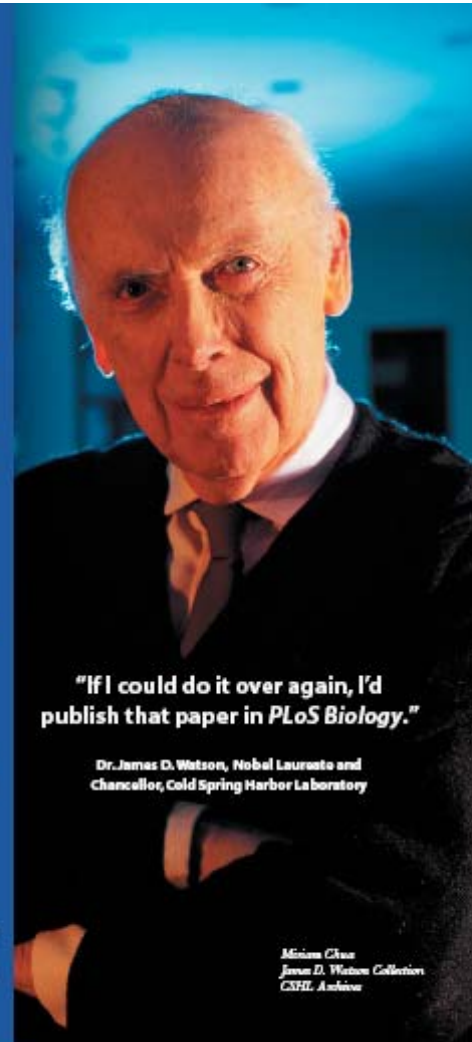
And the accolades are accumulating. *PLoS Biology* recently won a World Summit Award and was lauded by MPs in Great Britain's House of Commons. Even more importantly, *PLoS Biology* continues to publish some of the best-quality research, as recognized and covered in leading journals and news outlets.

To learn more about open access or to submit your own research for publication, go to www.plosbiology.org. Maybe you'll have the chance to do something James Watson only wishes he could have.



PLOS BIOLOGY

Celebrating our first anniversary
of open-access publishing



**"If I could do it over again, I'd
publish that paper in *PLoS Biology*."**

**Dr. James D. Watson, Nobel Laureate and
Chancellor, Cold Spring Harbor Laboratory**

*Miriam Chao
James D. Watson Collection
CSHL Archives*

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Announcing a New Genetics & Genomics Community Journal

Public Library of Science (PLoS) is pleased to announce the launch of *PLoS Genetics*, a new open-access, peer-reviewed journal published monthly by PLoS and run by an international Editorial Board, headed by the Editor-in-Chief, Wayne N. Frankel. *PLoS Genetics*, initiating publication in July 2005, reflects the full breadth and interdisciplinary nature of genetics and genomics research by publishing outstanding original contributions in all areas of biology — human studies as well as research on model organisms — from mice and flies, to plants and bacteria. Click here for more details about the journal scope and open access.

Image: Hatcher and Cohen (2003) DOI: 10.1371/journal.pbio.0090015

PLoS has enjoyed strong support from the genetics and genomics community. In the past

genetics.plosjms.org

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Announcing a New Computational Biology Community Journal

Public Library of Science (PLoS) and the International Society for Computational Biology (ISCB) are pleased to announce the launch of *PLoS Computational Biology*, a monthly, peer-reviewed open-access publication with the inaugural issue scheduled for July 2005. The journal is run by Editor-in-Chief Philip E. Bourne, and an international Editorial Board. With the focus on significant biological advances that arise through computation, *PLoS Computational Biology* provides a unique venue for the publication of related research from diverse fields of biology—from molecules and cells to populations and ecosystems—and stimulates this important and burgeoning field of life science investigation. Click here for more details about the journal scope and open access.

Image: Luana Iltisberg (2004)

PLoS has enjoyed strong support from the computational biology community. In the past year, a number of groundbreaking computational biology papers were published in *PLoS Biology*.

compbiol.plosjms.org

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Priorities

- Maintain quality in PLoS Biology, PLoS Medicine
- Continue launch of community-based titles and a venue for more specialised research
- Establish collaborations to convert/launch OA journals
- Keep lobbying for open access



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Long-term goals

- Economic sustainability
- Development of tools/resources for researchers
- Development of educational resource for students and teachers
- Open access becoming the favoured mode of publishing



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How can you help?

The PLoS Membership Program

The PLoS Institutional Membership Program, initiated in January 2004, serves two primary purposes:

- As a channel through which universities, research funders, and other organizations can support the aims of PLoS
- As a mechanism by which institutions offer a tangible incentive—discounted or waived fees—for their researchers to publish in PLoS open-access journals.
 - <http://www.plos.org/support/instmembership.html>

*Membership is substantially different from a **journal subscription**, in that everything we publish is **freely available online to everyone**, PLoS members or nonmembers alike.*

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Since the launch of our membership program in January 2004

- Over 130 Institutional PLoS members from the US and Europe.
- OSI grant to pay for PLoS Institutional Memberships on behalf of universities and other organizations in 44 developing countries
- JISC (UK) is supporting open access publishing through awards to publishers
 - pays open access publication charges on behalf of authors from UK higher education institutions.

For more information contact: Donna Okubo:
dokubo@plos.org

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The Scientific Publisher's mission

4 November 1869

Nature's Mission statement

"First, to place before the general public the grand results of Scientific work and Scientific discovery; and to urge the claims of Science to a more general recognition in Education and daily life.

Secondly, to aid scientific men themselves, by giving early information of all advances made in any branch of natural knowledge throughout the world, and by affording them an opportunity of discussing the various scientific questions which arise from time to time"

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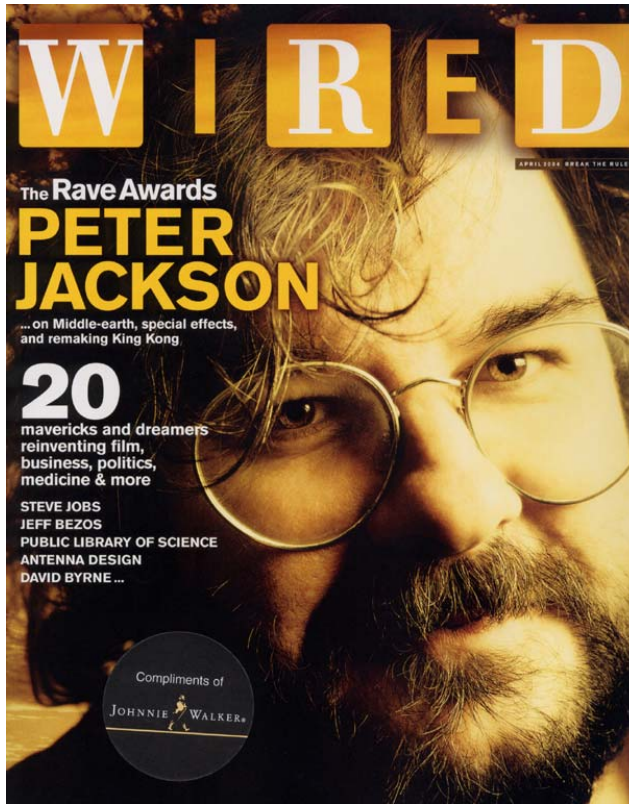
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PLOS is winning awards



RAVE AWARDS

FOR CRACKING THE SPINE OF THE SCIENCE CARTEL

SCIENCE
Public Library of Science: Michael Eisen, Harold Varmus & Patrick Brown

If science is a search for universal laws of nature, why do scientific journals copyright the papers they publish and charge as much as \$20,000 a year for a subscription?

"It's insane that the scientific community has allowed publishers to limit the impact of our research," says UC Berkeley geneticist Michael Eisen. Starting in the late '90s, Eisen and two of his colleagues, Stanford molecular biologist Patrick Brown and Nobel Prize-winning oncologist Harold Varmus, tried to work with traditional publishers to make research more widely available on the Web, but the publishers wouldn't cooperate. So the three scientists devised an end run: the Public Library of Science. In October 2003, PLoS published the first open source, peer-reviewed journal, PLoS Biology.

The key concept is what Eisen calls "open access." PLoS posts new research online, making it available to everyone from high school students to scientists in the developing world. Authors agree to let anyone annotate, excerpt, link, and otherwise add value. And that's not all: Online readers pay nothing. Funders of research—usually government agencies—cover the cost of publication up front.

The goal isn't to put old-line publishers out of business but to force them to embrace open access. "We'd be happy if every publisher shifted to open access tomorrow," Eisen says. "But they're not going to do it on their own. The scientific community has to take matters into its own hands." — Ted Greenwald

THE OTHER NOMINEES
Charles Bennett *cosmologist*
Hutch Goddard *Space Flight Center*
Borisov Jankó *physicist, University of Miskolc*

J. Craig Venter *Center for the Advancement of Genome Research*
Alexandre Waggonner *theoretical physicist, Université Paris-Sud*

142 • 04/2004 • WIRED

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