



PREPRINTS: A JOURNEY THOUGH TIME

GRAHAM STEEL

OPEN KNOWLEDGE

OPEN SCIENCE
WORKING GROUP
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THE "CAMERON NEYLON SLIDE"

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WHAT IS A PREPRINT ? ♦

In academic publishing, a **preprint** is a version of a scholarly or scientific paper that precedes publication in a peer-reviewed scholarly or scientific journal.

The preprint may persist, often as a non-typeset version available free, before or after a paper is published in a journal.

♦ YMMV



No universal definition of preprint exists (and never will)

The pace of technological change over the past two decades has far outstripped the language we use to describe the objects and processes we use to communicate. This disconnect between language and technology is at the root of the current debate around preprints. The very word “preprint” is an odd combination of retronym and synecdoche. A preprint is increasingly unlikely to ever be a precursor to anything that is physically printed onto paper. At the same time, that use of “print” takes one small part of scholarly publishing to stand in for the entire process. A preprint is different from a working paper, yet both are entirely different to an academic blog post. Additionally, all these appear in designated online repositories as digital documents that are recognizably structured as scholarly objects. Some preprints are shared with the future intent of formal publication in a journal or monograph. But not all. The term is used to mean a host of different things, and as such, remains referentially opaque^a. An **earlier version of this article** is available on the “preprint” server BioRxiv. Should we refer to that here? Should it be formally referenced? Or is that “cheating” by inflating citation counts? What do we call the version of this article on *F1000Research* after posting, but prior to the indexing that follows approval by peer review?

Neylon C, Pattinson D, Bilder G and Lin J. On the origin of nonequivalent states: How we can talk about preprints [version 1; referees: 2 approved]. *F1000Research* 2017, 6:608 (doi: [10.12688/f1000research.11408.1](https://doi.org/10.12688/f1000research.11408.1))

PREPRINTS - HOW FAR BACK IN TIME ?

“arXiv e-prints and the journal of record: An analysis of roles and relationships” Larivière *et al*

First a word of caution: one should not be blinded by enthusiasm for the new. Preprints, after all, are far from novel. By way of illustration, preprints were cited as far back as 1922 in a Physical Review paper¹, and the Information Exchange groups, run by the National Institutes of Health, circulated already more than 1.5 million preprints in the mid-sixties (Confrey, 1996). Moreover, relatively few scholars, with physicists and mathematicians being notable exceptions, use preprints extensively (Swan & Brown, 2003). Lastly, what appears to work as a publishing model in one field may not translate to another (Kling, Spector, & Fortuna, 2004; Kling, Spector, & McKim, 2002).

The high values of a frequently found in condition R cannot be the immediate result of the cold-working which the material has suffered, for they do not recur in condition RAR . They are accordingly ascribed to inhomogeneity, existing in the original ingot, in the arrangement of atoms within each crystal, which does not permit the interatomic forces between unlike atoms to have their maximum effect. It will not suffice to suppose that different crystals have different compositions, for, as stated above, those with the more compact arrangements would be the ones for which a would actually be measured. After annealing, which renders the individual crystals more homogeneous, as proven by the

¹ L. W. McKeehan, Frank. Inst. JI., 193, 231-242 (Feb., 1922).

² E. C. Bain, Min. and Met., Preprint 1139-N (Feb., 1922).

³ G. Tammann, loc. cit.



flic.kr/p/3Hp8U

1966 - PREPRINTS MADE OUTLAWS

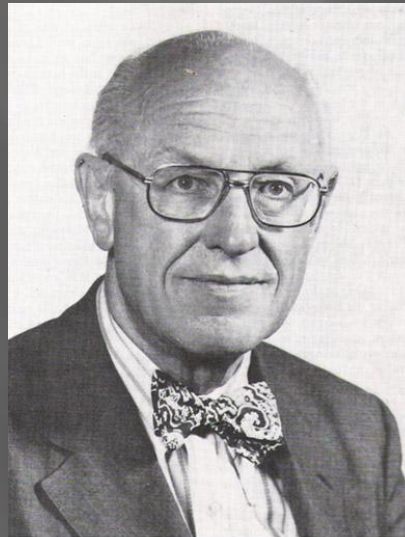
Preprints made Outlaws

THE Commission of Biochemical Editors of the International Union of Biochemistry is proposing to take firm and, it hopes, lethal steps against the Information Exchange Groups which have been organized, over the past four years, from the National Institutes of Health in the United States. At a meeting in Vienna a week ago, the editors of six principal journals agreed to propose to their editorial boards that in future they would not accept articles or other communications previously circulated through the Information Exchange Groups. Moreover, they decided that they would not allow papers accepted for publication to be circulated in the IEG system and that they would not allow reference to IEG memoranda except as "personal communications". Only the last of these three proposals will commend itself to the IEG organizers, for they too ask that the existence of their network shall be confidential. The first two recommendations could in themselves put IEG out of business. As yet it is too soon to know how quickly the six journals will be able to make a decision, but there are hopes that the matter will be resolved before the end of the year, by which time journals other than those represented at Vienna (including *Nature*) will be invited to declare themselves.

1969

INGELFINGER RULE

In scientific publishing, the **Ingelfinger rule** originally stipulated that *The New England Journal of Medicine* would not publish findings that had been published elsewhere, in other media or in other journals. Many scientific journals followed suit after it was first enunciated in 1969 by Franz J. Ingelfinger.



Franz Josef Ingelfinger (1910-1980)

en.wikipedia.org/wiki/Ingelfinger_rule

WHAT HAPPENED NEXT?



1989



Tim Berners-Lee
Web Developer

1991



- ▣ TB-L "There is an experimental W3 server for the SPIRES High energy Physics **preprint** database, thanks to Terry Hung, Paul Kunz and Louise Addis of SLAC."

arXiv.org @arxiv June 12th

Replying to @McDawg @timberners_lee

One difference that might be worth noting - SPIRES a database, #arXiv a repository

1991



Cornell University
Library

arXiv.org



Open access to **1,273,038**
e-prints in
Physics, Mathematics,
Computer Science,
Quantitative Biology,
Quantitative Finance
and Statistics (and more).

PAUL GINSPIRG

arxiv.org

ABOUT 8,000 PREPRINTS PER MONTH ARE UPLOADED TO ARXIV AS OF 2016



Preprint submissions to arXiv



#UKSG1dayconf

2007 - 2012 NATURE PRECEDINGS

Nature Precedings

The screenshot shows the homepage of the Nature Precedings website. At the top, there are links for "jump to main content" and "jump to navigation". The main header features the "natureprecedings" logo with the tagline "Pre-publication research and preliminary findings", a group of stylized people, and "Log in" and "Register" buttons. Below the header is a navigation bar with "Home" and "Latest Documents" links, a search bar with a dropdown menu set to "All documents", a "GO" button, and a link to "Advanced search".

On the left side, there is a list of scientific fields with their respective document counts:

- Bioinformatics (180)
- Biotechnology (102)
- Cancer (47)
- Chemistry (82)
- Developmental Biology (23)
- Earth and Environment (74)
- Evolutionary Biology and Ecology (150)
- Genetics (78)
- Immunology (39)
- Microbiology (48)
- Molecular Cell Biology (115)
- Neuroscience (137)
- Pharmacology (46)

In the center, there is a large illustration of a person with arms raised in a celebratory gesture, with the text "Contribute, comment and collaborate" below it. A paragraph describes the service: "Nature Precedings is a free online service from NPG that enables researchers in the life sciences to openly share preliminary findings, solicit community feedback, and claim priority over discoveries by posting preprint manuscripts, white papers, technical reports, posters, and presentations."

On the right side, there is a "Submit a document" button and a section for "Active Discussions". Two discussion entries are visible:

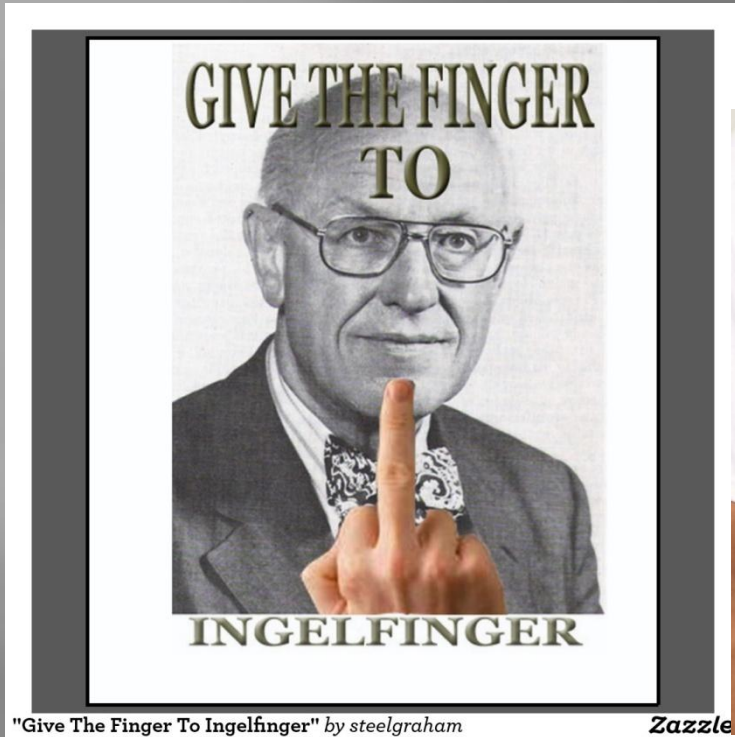
- Swine Influenza A Evolution via Recombination – Genetic Drift Reservoir** by Henry L. Niman, with 14 comments, last 4 days ago.
- Seasonal changes in brain serotonin transporter binding in short 5-HTTLPR-allele carriers but not in long-allele** by Jan Kalbitzer et al., with 2 comments, last about 14 hours ago.

At the bottom, there is a "Latest documents" section with a "BROWSE" link and a list of document types: Manuscripts, Posters, Presentations, and All. There is also a "Sign up for alerts" link. A "Highlighted Collections" section is partially visible at the bottom right, showing a collection titled "AFP-Bioscience 2008".

<http://precedings.nature.com>

precedings.nature.com

2012



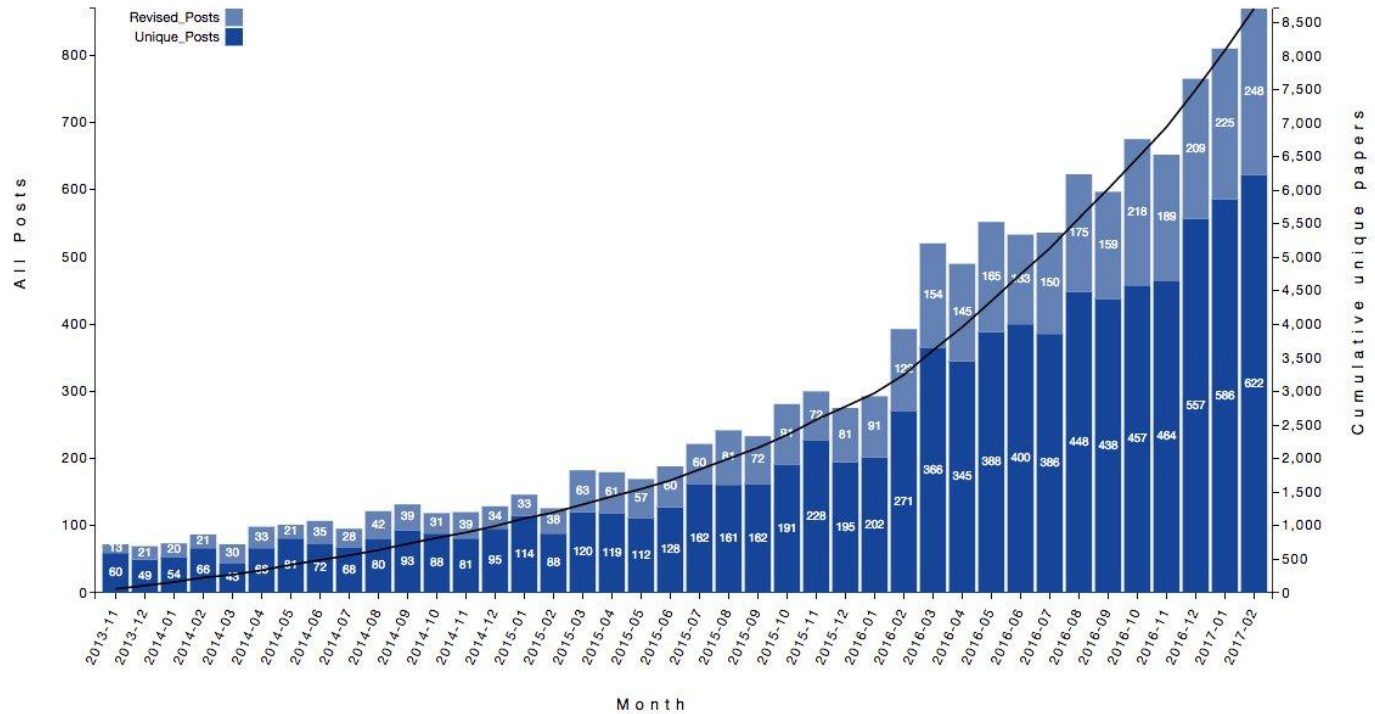
zazzle.co.uk/give_the_finger_to_ingelfinger_t_shirt-235460928045592218

GDoc – Publishers/Journals who (still) practice the Ingelfinger Rule

2013



>10,000 ARTICLES, 810 A MONTH





THE PREPRINT SERVER FOR BIOLOGY



[Advanced Search](#)

Subject Areas

All Articles

[Animal Behavior and Cognition](#)

[Biochemistry](#)

[Bioengineering](#)

[Bioinformatics](#)

[Biophysics](#)

[Cancer Biology](#)

[Cell Biology](#)

[Clinical Trials](#)

[Developmental Biology](#)

[Ecology](#)

[Epidemiology](#)

[Evolutionary Biology](#)

[Genetics](#)

[Genomics](#)

[Immunology](#)

[Microbiology](#)

[Molecular Biology](#)

[Neuroscience](#)

[Paleontology](#)

[Pathology](#)

[Pharmacology and Toxicology](#)

[Physiology](#)

[Plant Biology](#)

[Scientific Communication and Education](#)

[Synthetic Biology](#)

[Systems Biology](#)

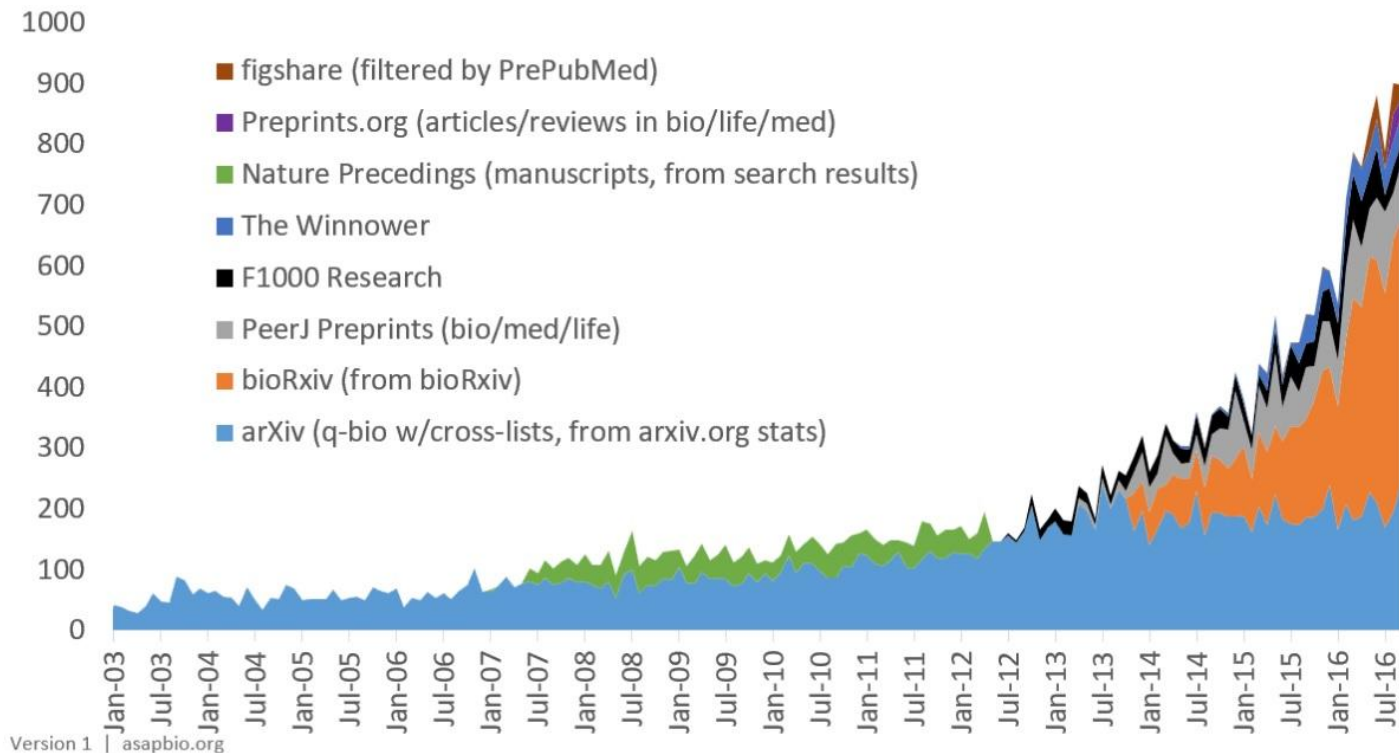
[Zoology](#)

View by Month



flic.kr/p/5tN1aJ

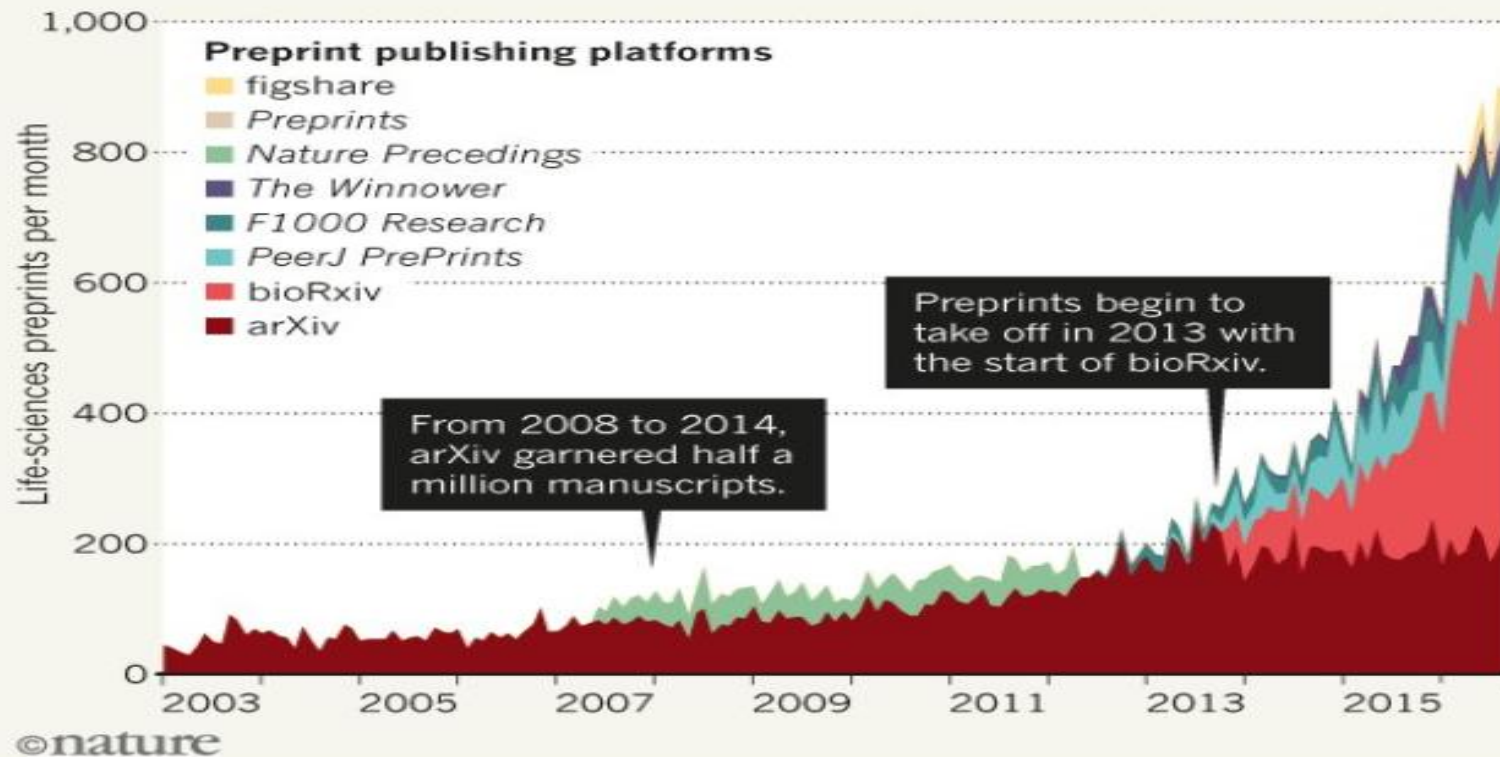
Preprints are taking off in biology



asapbio.org

BIOLOGY PREPRINTS ON THE RISE

Life scientists have not embraced preprints — studies published online before peer review — as readily as have physicists or mathematicians. But that is changing. Even the US National Institutes of Health is getting behind the practice, mandating that grant recipients in its 4D Nucleome consortium publish preprints of their work.



Lancet Inf Diseases @TheLancetInfDis · Dec 16

This graph from @nature shows that preprints in the life sciences are really starting to take off

← 3

↻ 17

♥ 12

⋮

medium.com/@OmnesRes/a-journal-reveals-its-true-colors-f1bd9027c008

2013



OSF Preprints is a place to search and discover preprints across disciplines and also upload your own preprints.

This free service uses [SHARE](#) to aggregate search results from a variety of other preprint providers such as arXiv, biorXiv, PeerJ, and CogPrints. **Over 2 million preprints are currently indexed.**

We developed OSF Preprints to meet these major goals:

- Facilitate and accelerate new models of scholarly communication
- Improve accessibility of scholarship
- Facilitate timely feedback on scholarship
- Provide a single search interface to access a number of preprint providers

2,029,921 searchable preprints as of June 13, 2017

cos.io

WIKIPEDIA

Contents [\[hide\]](#)

1 Role

1.1 Stages of printing

1.2 Tenure and promotion

2 Preprint server by research field

2.1 arXiv – physics, mathematics, computer science, quantitative biology and finance, statistics

2.2 bioRxiv – biology

2.3 ChemRxiv - chemistry

2.4 engrXiv - engineering

2.5 Nature Precedings – biology, medicine, chemistry, earth science

2.6 PeerJ PrePrints – biology, medicine, health sciences, computer science

2.7 MDPI's Preprints – any field

2.8 Philica – any field

2.9 Sciencepaper Online – any field

2.10 SocArXiv - social science

2.11 Social Science Research Network – social science and humanities

2.12 Zenodo

arXiv
biorXiv

In the last 18 months

Chemrxiv
engrxiv
SocarXiv
PsyArXiv
AgrXiv
PaleorXiv
SportRxiv
LawArXiv
ChinaXiv
LIS Scholarship Archive (LISSA)

WIKIPEDIA

Contents [\[hide\]](#)

1 Role

1.1 Stages of printing

1.2 Tenure and promotion

2 Servers by field

2.1 General

2.2 Physical sciences

2.3 Computer science

2.4 Biological and chemical sciences

2.5 Social science and humanities

2.6 Agriculture and allied sciences

2.7 Paleontology

2.8 Sport

2.9 Law

3 See also

4 References

5 External links

en.wikipedia.org/wiki/Preprint

2015 - ASAP_{BIO}



Consensus grows on preprints in biology

THE LIFE SCIENCES

The Benefits of a “Central Service” for Biology Preprints

asapbio.org/category/central-service

APRIL 2017 - BIORXIV GETS FUNDING FROM CHAN ZUCKERBERG INITIATIVE

BioRxiv remains a small operation, with five part-time staff who piggyback on their regular jobs at CSHL and funding from CSHL and another donor, says Co-Founder John Inglis of CSHL.

The new CZI funding will allow CSHL to hire two or three full-time staff Inglis says. **Although CZI is not disclosing the size of its contribution , for comparison, arXiv has annual operating costs of \$1.3 million and posts about 9000 preprints a month.**

The bioRxiv grant is **part of CZI's \$3 billion**, 10-year science initiative to treat or prevent all diseases launched 7 months ago by Facebook Co-Founder Mark Zuckerberg and his wife, pediatrician Priscilla Chan.

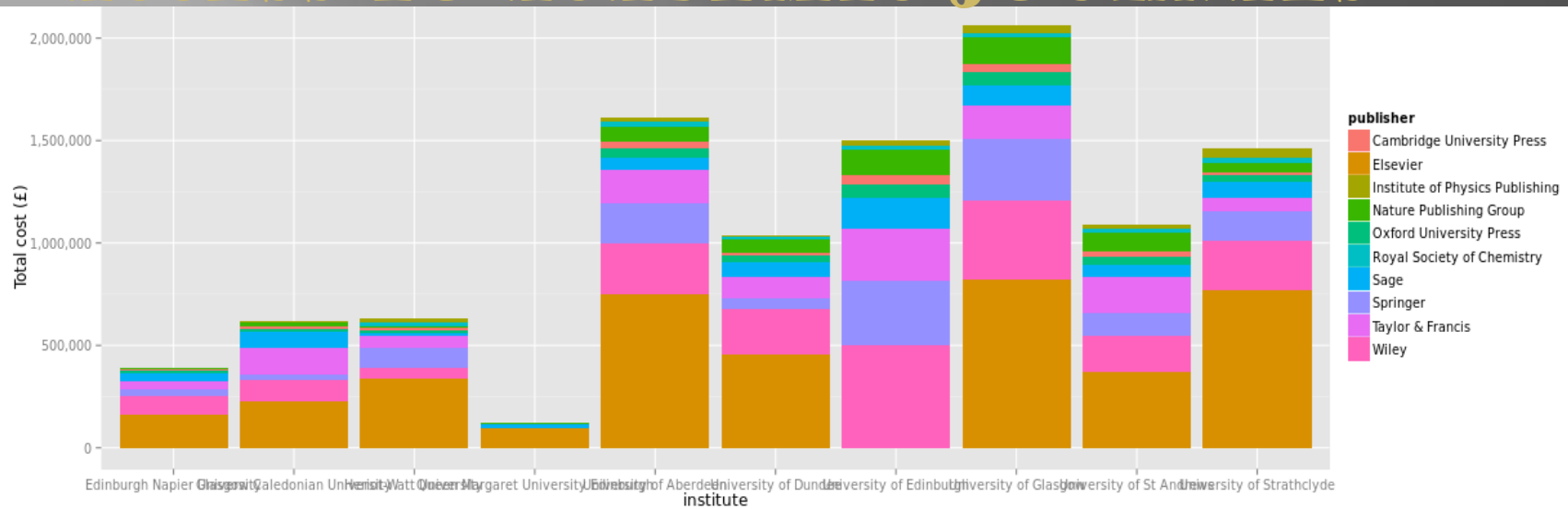
sciencemag.org/news/2017/04/biorxiv-preprint-server-gets-funding-chan-zuckerberg-initiative

EVERYTHING COMES AT A PRICE



BRENDAN MONROE

SCOTTISH UNIVERSITIES ANNUALLY SPEND AN AVERAGE OF £11.5M ON ACCESS TO ACADEMIC JOURNALS



Rank	Institute	Total (£)
9	University of Glasgow	2,062,352
18	University of Aberdeen	1,612,187
19	University of Edinburgh	1,503,370
20	University of Strathclyde	1,459,745
28	University of St Andrews	1,092,930
30	University of Dundee	1,035,905
53	Heriot-Watt University	634,634
55	Glasgow Caledonian University	621,653
72	Edinburgh Napier University	389,365
111	Queen Margaret University Edinburgh	119,801

ARTICLE PROCESSING CHARGES (APC)



Average APC = \$906 – Solomon *et al*

openaccesspublishing.org/apc2/

HOW MUCH DO YOU THINK IT COSTS PER PREPRINT ?



BRENDAN MONROE

OPEN ACCESS: THE TRUE COST OF SCIENCE PUBLISHING

CHEAP OPEN-ACCESS JOURNALS RAISE QUESTIONS ABOUT THE VALUE PUBLISHERS ADD FOR THEIR MONEY.

- ▣ “Many researchers in fields such as mathematics, high-energy physics and computer science do not think it is. They post pre- and post-reviewed versions of their work on servers such as arXiv – an operation that costs some \$800,000 a year to keep going, or about **\$10 per article**. Under a scheme of free open-access 'Episciences' journals proposed by some mathematicians this January, researchers would organize their own system of community peer review and host research on arXiv, making it open for all at minimal cost (see Nature <http://doi.org/kwg>; 2013).”

WHERE DO I CHECK ?



Publisher copyright policies & self-archiving

sherpa.ac.uk/romeo/index.php

**WANT SOME OF
THESE ?**

I post preprints

ASAPbio.org

Request stickers

Preprints are gaining momentum in the life sciences, but many biologists are still unfamiliar with them. We hope that these stickers (for your laptop, water bottle, travel mug, notebook, office door, etc) help start conversations.



[#ASAPBio](#)

asapbio.org/stickers

PREPRINTS - WHO TO FOLLOW ?

[steelgraham.wordpress.com/2017/05/15/
preprints-who-to-follow/](http://steelgraham.wordpress.com/2017/05/15/preprints-who-to-follow/)

PREPRINT EXPLORERS - TWITTER

[twitter.com/McDawg/lists/preprint-
explorers](https://twitter.com/McDawg/lists/preprint-explorers)

FURTHER READING

- ▣ The Rise of Preprints
- ▣ The selfish scientist's guide to preprint posting
- ▣ Ahead of the curve: embracing preprints
- ▣ The Role of Preprints in Journal Publishing
- ▣ The Rise of Preprints in Physics, Mathematics, and Computer Sciences

THANK YOU



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- ▣ Open Knowledge okfn.org
- ▣ These slides at slideshare.net/steelgraham