

TRANSPARENCY IN PUBLISHING AND WHY ALL SCIENTIFIC RESEARCH MATTERS

October 2017
#OAWeek17

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Editorial Director, F1000 Platforms

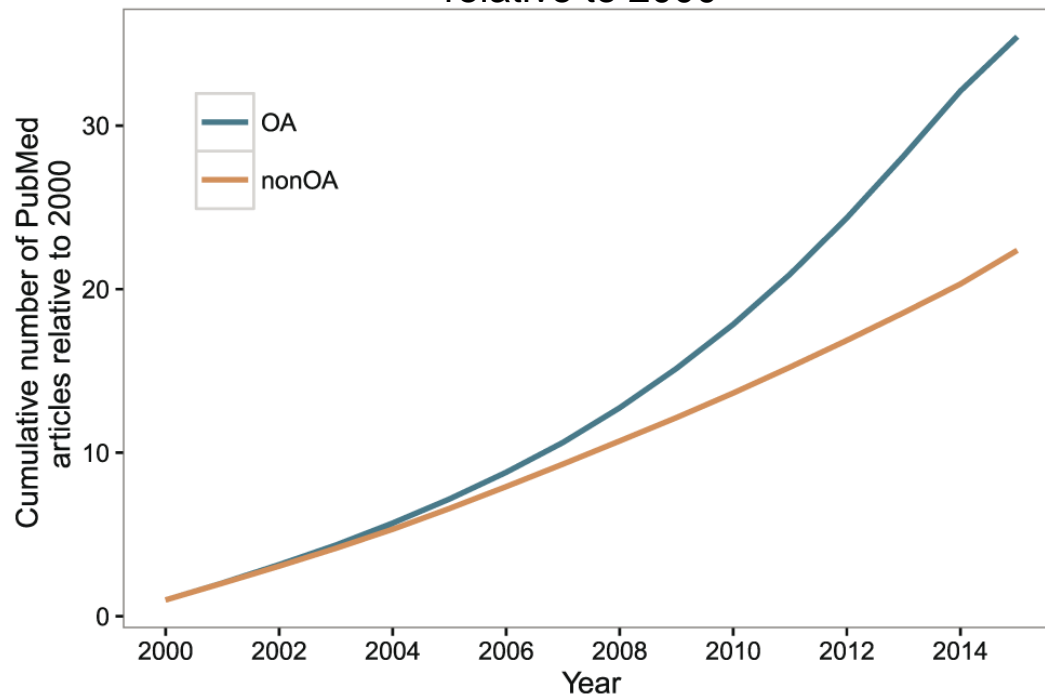
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OVERVIEW

- Opening up the peer review process
- Removing editorial bias
- Data sharing and reducing research waste
- How funders and institutions are getting involved

Percentage increase in research articles in PubMed Central, relative to 2000



Tennant JP, Waldner F, Jacques DC et al. The academic, economic and societal impacts of Open Access: an evidence-based review [version 3]. F1000Research 2016, 5:632 (doi: 10.12688/f1000research.8460.3)

SOME MAJOR MILESTONES IN LIFE SCIENCES OA PUBLISHING

- 2000** – BioMed Central launches as first major OA publisher. PubMed Central also founded as the first OA digital repository
- 2001** – Public Library of Science (PLOS) launched. Creative Commons founded.
- 2002** – Release of Budapest Open Access Initiative (BOAI). Also start of Research4Life to provide developing countries with free/low cost access to peer-reviewed literature
- 2003** – Launch of Directory of Open Access Journals (DOAJ). Wellcome Trust announced endorsement of OA
- 2008** – NIH announces an OA mandate (green or gold OA)
- 2013** – F1000Research launched as first OA post-publication peer review publishing platform
- 2014** – Charity Open Access Fund established (administered by Wellcome).
- 2015** – Bill & Melinda Gates Foundation mandates OA (gold since 2017)
- 2016** – Wellcome Open Research launched
- 2017** – Gates Open Research and MNI Open Research launched (and more to follow)

OPEN ACCESS

Issues around access have been improved....

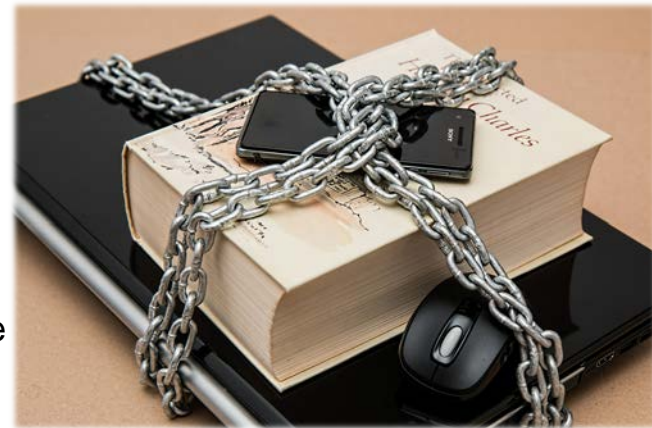
... but problems in scientific publishing are bigger than just access



PROBLEMS WITH CURRENT SCIENTIFIC COMMUNICATION

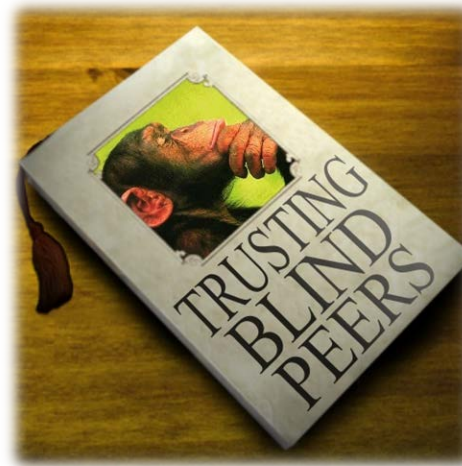
Many problems remain with the traditional publishing process:

- introduces delays
- limited access to data
- introduces bias
 - lack of transparency in publication decisions
 - bias in our understanding of science
- causes research waste
- lack of credit for key contributors: reviewers



IS PEER REVIEW FIT FOR PURPOSE?

- Slow
- Inconsistent
- Unclear
- Transparency?
- Block innovative ideas?



Flickr: Gideon Burton

TYPES OF PEER REVIEW

- Single blind
- Double blind
- Collaborative
- Open peer review
- Post-publication



TRADITIONAL PUBLISHING – END OF THE ROAD?

- Journal concept outdated?
- Demand for rapid access
- Demand to reduce research waste
- Demand to accelerate impact
- Increasing drive towards Open Science

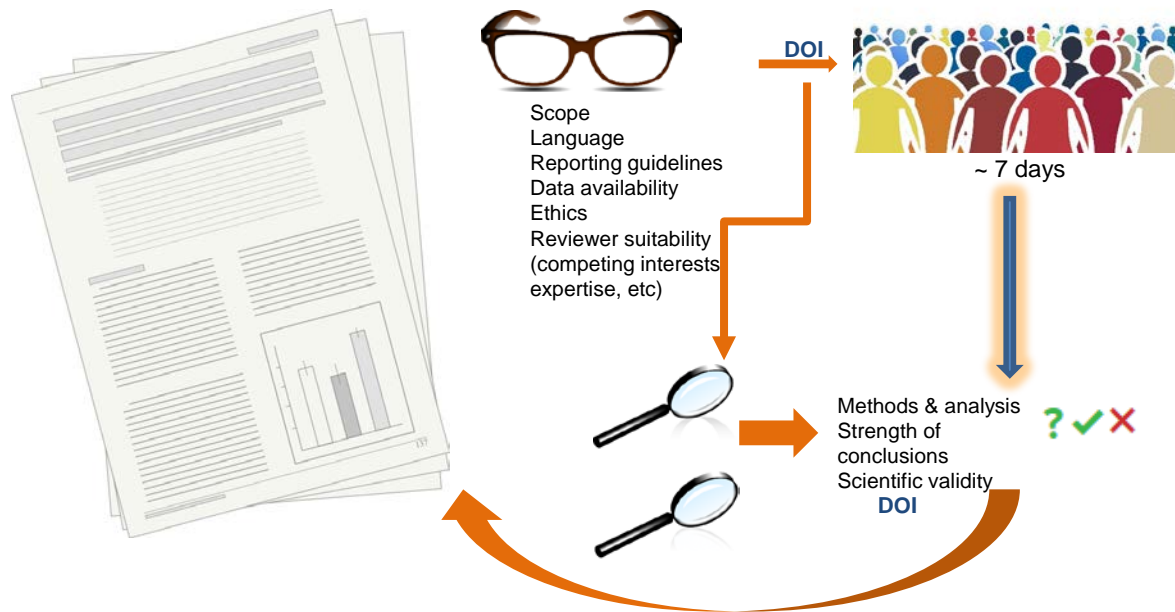


PUTTING THE RESEARCHERS BACK IN CONTROL

Open Science Publishing Platform

- Author led
- Immediate publication
- Transparent refereeing
- Recognition for reviewers (including citable reports)
- No editorial bias
- Data included
- Indexed in PubMed, Scopus, etc
- Gold Open Access (Article charges \$150–\$1000)

THE F1000RESEARCH PUBLISHING AND PEER REVIEW PROCESS



POST-PUBLICATION INVITED OPEN PEER REVIEW

- Author suggests reviewers
- F1000Research team checks suitability
 - not close collaborators
 - competing interests
 - suitable subject expertise
- F1000Research team invites reviewers on behalf of authors
- Article published online and peer review takes place in full view of authors and readers
- Reviewers (and readers) have access to source data (unless there are ethical/legal restrictions)
- Article status summary highlights progress

TRANSPARENT REFEREEING AND REVIEW STATUS

Check for updates

SHORT RESEARCH ARTICLE

EDIT VERSION

REVISOR

Reprogramming diminishes retention of *Mycobacterium leprae* in Schwann cells and elevates bacterial transfer property to fibroblasts [version 3; referees: 3 approved]

Toshihiro Masaki^{1,2,4}, Aidan McGlinchey¹, Simon R. Tomlinson¹, Jinrong Qu¹, Anura Rambukkana^{1,4}

Author details

Grant information

Abstract

Background: Bacterial pathogens can manipulate or subvert host tissue cells to their advantage at different stages during infection, from initial colonization in primary host niches to dissemination. Recently, we have shown that *Mycobacterium leprae* (ML), the causative agent of human leprosy, reprogrammed its preferred host niche de-differentiated adult Schwann cells to progenitor/stem cell-like cells (pSLC) which appear to facilitate bacterial spread. Here, we studied how this cell fate change influences bacterial retention and transfer properties of Schwann cells before and after reprogramming.

Results: Using primary fibroblasts as bacterial recipient cells, we showed that non-reprogrammed Schwann cells, which preserve all Schwann cell lineage and differentiation markers, possess high bacterial retention capacity when co-cultured with skin fibroblasts; Schwann cells failed to transfer bacteria to fibroblasts at higher numbers even after co-culture for 5 days. In contrast, pSLCs, which are derived from the same Schwann cells but have lost Schwann cell lineage markers due to reprogramming, efficiently transferred bacteria to fibroblasts within 24 hours.

Conclusions: ML-induced reprogramming converts lineage-committed Schwann cells with high bacterial retention capacity to a cell type with pSLC stage with effective bacterial transfer properties. We propose that such changes in cellular properties may be associated with the initial intracellular colonization, which requires long-term bacterial retention within Schwann cells, in order to spread the infection to other tissues, which entails efficient bacterial transfer capacity to cells like fibroblasts which are abundant in many tissues, thereby potentially maximizing bacterial dissemination. These data also suggest how pathogens could take advantage of multiple facets of host cell reprogramming according to their needs during infection.

<http://f1000research.com/articles/2-198>

METRICS

1922

VIEWS

708

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Referee Status: ✓✓✓

Invited Referees

Version(s)	1	2	3
REVISOR Version 3 published 14 Nov 2013	✓	✓	✓
REVISOR Version 2 published 01 Nov 2013	✓	✓	?
Version 1 published 25 Sep 2013	?	?	?

1 Maximiliano Gutierrez, MRC National Institute for Medical Research, UK

2 Yoshiko Takahashi, Kyoto University, Japan

3 Tom Gillis, Louisiana State University School of Medicine, USA

All reports (6), Responses and comments (1)

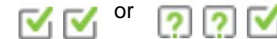
Comments on this article

All comments (0)

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Indexed once it passes peer review:



TRANSPARENT REFEREEING AND DISCUSSION

Referee Report 26 May 2015

Rafael Irizarry, Department of Biostatistics, Harvard School of Public Health, Boston, USA

? Approved with Reservations

In this *PNAS* paper is found that the first three principal components obtained from mouse and human gene expression data appear more similar than expected.

Gilad and Mizrahi-Man (in their F1000Research article) seem sound and they are

An important discovery in different instruments. The model (ComBat) to account for tissue (see Figure 3). The expression data are not

The
ht
Yoav Gilad, Human Genetics, University of Chicago, USA
Dr. Irizarry,

Thank you for spending the time to provide a review of our work. We agree with you that given the study design used by the mouse ENCODE consortium, applying a batch correction is futile. Indeed, we explicitly explain that in our discussion (you referred to that section of the text in your review).

We further agree that it would be intellectually interesting to research the extent of the batch effect further – for example, by following your suggestion on how to test for the effect of instrument and lane.

However, we feel that this additional effort papers did not discuss (or account for) the details that allowed us to reconstruct the unusual biological result reported by the paper. We believe it is the result of a technical possibility.

Reader Comment 21 May 2015
Shin Lin, Department of

We continue our comparison. We have re-generated a multiplexing scheme design, lane flow cell separated from species

at species-specific expression levels. Thus, we emphatically disagree with the conclusion from Gilad and Mizrahi-Man that our conclusions are "not warranted," but rather we argue that objective normalization procedures allow the discovery of the clustering of transcriptomes by species.

Gilad and Mizrahi-Man's work focused on one particular dataset in Lin et al.¹ However, that paper contains a principal component analysis (PCA) on data from multiple sources: Stanford (human, mouse), Salk (human), HBM (human), LICR (mouse) and CSHL (mouse). There are undoubtedly many technical differences between

Views

1386

Cite

HOW TO CITE THIS REPORT:

Irizarry R. Referee Report For: A reanalysis of mouse ENCODE comparative gene expression data [version 1; referees: 3 approved, 1 approved with reservations]. *F1000Research* 2015, 4:121 (doi: 10.5256/f1000research.7019.r8732)

The direct URL for this report is:

<https://f1000research.com/articles/4-121/v1#referee-response-8732>

Referees:

- Get credit for contributing to discussion
- Focus on helping authors improve their work
- Their reports provide new form of expert article-based assessment



- Others can try to replicate the study (referees often don't have time)
- Can then invite specific referees for those issues; the entire history is available to all

F1000

DATA AVAILABILITY – ENABLES PEER REVIEW

F1000Research » Articles

RESEARCH ARTICLE

REVISED Brain-to-Brain (mind-to-mind) interaction at distance: a confirmatory study [v3; ref status: approved 1, not approved 1, <http://f1000r.es/4ka>]

Patrizio Tressoldi¹, Luciano Pederzoli², Marco Bilucaglia², Patrizio Caini², Pasquale Fedele³, Alessandro Ferrini², Simone Melloni², Diana Richeldi², Florentina Richeldi², Agostino Accardo⁴

Author affiliations
Grant information

Abstract

This study reports the results of a confirmatory experiment testing the hypothesis that coincidences of a sequence of events (silence-signal) of different length, activity of two human partners spatially separated when one member of the pair is stimulated and the second one is connected to the first one. Seven selected participants with a long friendship and high concentration, were divided into two groups: a "stimulated" group and a "connected" group. Both groups were asked to perform a task. The results of the experiment are presented and discussed.

Version 2

Referee Report 30 Sep 2014

Sam Schwarzkopf, Institute of Cognitive Neuroscience, University of Oxford

Not Approved

... correlations are significant. Considering that I have not been able to extract power from different frequency bands, I am not sure if the results are reliable.

... Based on all these factors, it is impossible for me to carry out the additional analyses, and thus the most fundamental problem in the analysis would be unknown. I respect the authors' patience and professionalism in dealing with what I can only assume is a complex task.

Open data:

- Referees can assess manuscript & conclusions properly
- Can refocus discussion from nonspecific uninformed criticisms to specific scientific debate & discussion

Twitter comments:

rogiev kievit @rogievK · Sep 4
@Neuro_Skeptic @RidgwayGR @neurobollocks @mollicrockett permuted null would have been nice (eg PNAS happiness paper had false + rate of 55%)

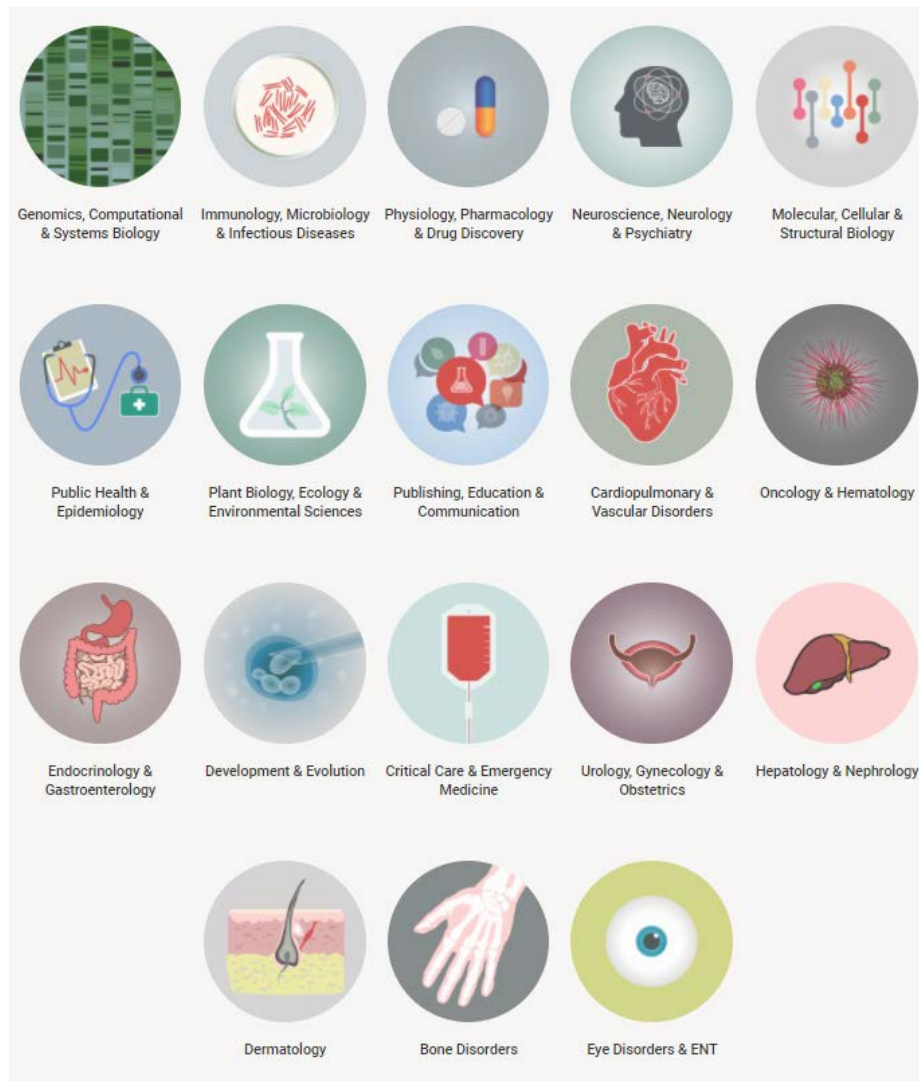
Narender Ramnani @n_ramnani · Sep 4
@RidgwayGR @neurobollocks @Neuro_Skeptic @mollicrockett Hmmm...data

Ged Ridgway @RidgwayGR · Sep 5
@Neuro_Skeptic Indeed. One peculiarity is that the results seem to be subjectively assessed, "two co-authors... agreement was 89.3%"

OPEN REVIEW, DATA ACCESS, AND NO EDITORIAL BIAS

The collage features several overlapping screenshots of scientific journals and preprint servers:

- Nature | ARTICLE**: A screenshot of a Nature article titled "Stimulus-triggered fate conversion of somatic cells into pluripotency" by Haruko Obokata, Teruhiko Wakayama, Hitoshi Niwa, Masayuki Yamato & Chikara Yamanaka. The article is dated September 11, 2014.
- F1000Research**: Two screenshots of the F1000Research platform. One shows a research article titled "Transient acid treatment can convert somatic cells to become pluripotent stem cells: 2 approved" by Mei Kuen Tang, Lok Man Lo, Wen Ting Shi, Yao Lin, and others. The other shows a dataset titled "Dataset 1 and 2. qPCR results of CD45+ splenocytes/ lung fibroblasts" with 459 views, 0 shares, and 23 downloads. It includes a table with columns 1, 2, 3, and 4, and rows for "Genes of interest" and "Days post-acid-treatment".
- bioRxiv**: A screenshot of the bioRxiv preprint server for biology, showing a preprint titled "Results of an attempt to reproduce the STAP phenomenon [version 2; referees: 2 approved]" by Shin Aizawa. It includes a "Check for updates" button and a "Share" button.
- Science**: A screenshot of the Science journal website, showing a featured article titled "EXCLUSIVE: Nature reviewers not persuaded by STAP stem cell papers" by Gretchen Vogel and Dennis Normile, dated September 11, 2014.
- Open Peer Review**: A screenshot of the Open Peer Review section, showing a "Referee Status" of "2 approved" and a list of invited referees: Austin Smith, University of Cambridge, UK; and Inessa de Lencastre, The University of Manchester, UK. It also shows a list of comments on the article.

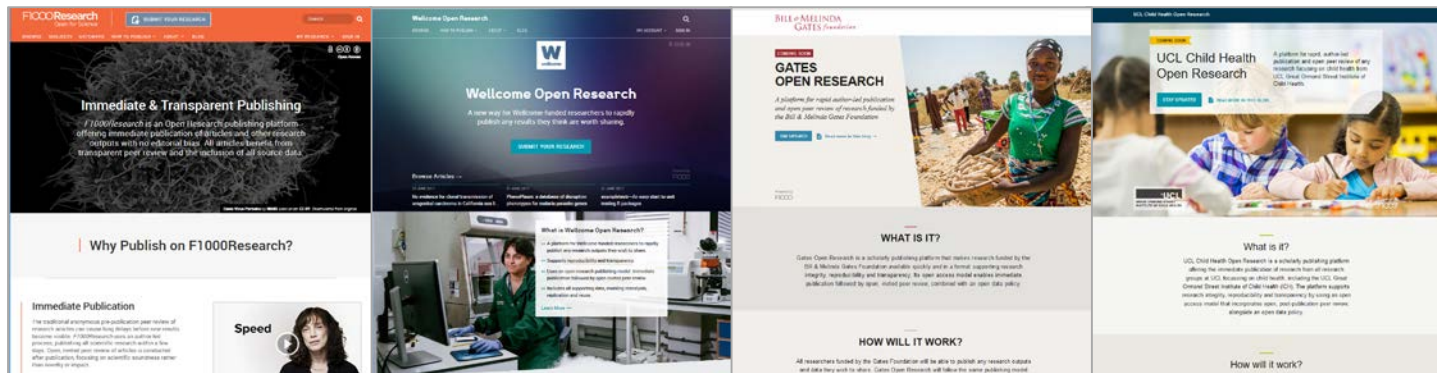


F1000Research
Open for Science

Types of articles:

- Research
- Research Note
- Systematic Review
- Review
- Opinion
- Methods
- Study Protocol
- Case Study
- Clinical Practice Article
- Antibody Validation
- Correspondence
- Data Note
- Software Tool

OPEN RESEARCH PUBLISHING PLATFORMS



- F1000's own platform
- Launched 2013

- Controlled by Wellcome; operated by F1000
- Launched Nov 2016

- Controlled by Bill & Melinda Gates Foundation, operated by F1000
- Due to launch Nov 2017

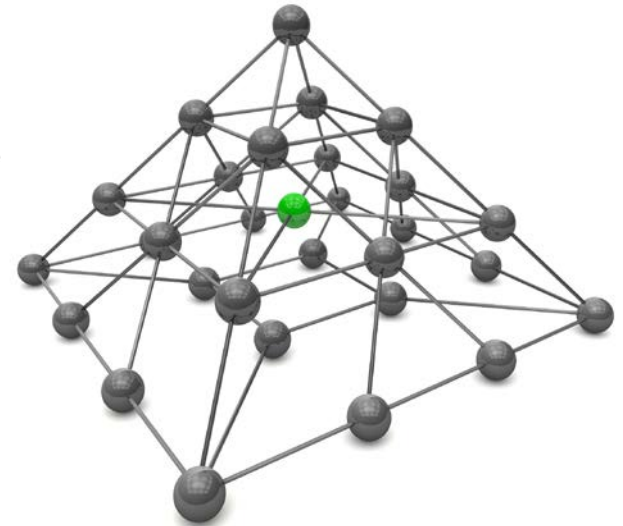
- Controlled by UCL Great Ormond Street Institute of Child Health, operated by F1000
- Due to launch in 2018

Benefits of funder-model:

- Authors decide what they want to share – take more responsibility for their work
- Authors publish what they find – reduces selective reporting

WHY WE NEEDED TO CHANGE THE SYSTEM

- Transparency in peer review processes
- Transfer control from publisher to researchers
- Give reviewers credit for their work, and make reports citable
- Reduce bias in published scientific literature
- Facilitate data sharing and reproducibility of research
- Give space to null findings, replication studies, etc
- Speed up how scientific findings can be communicated



QUESTIONS?



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