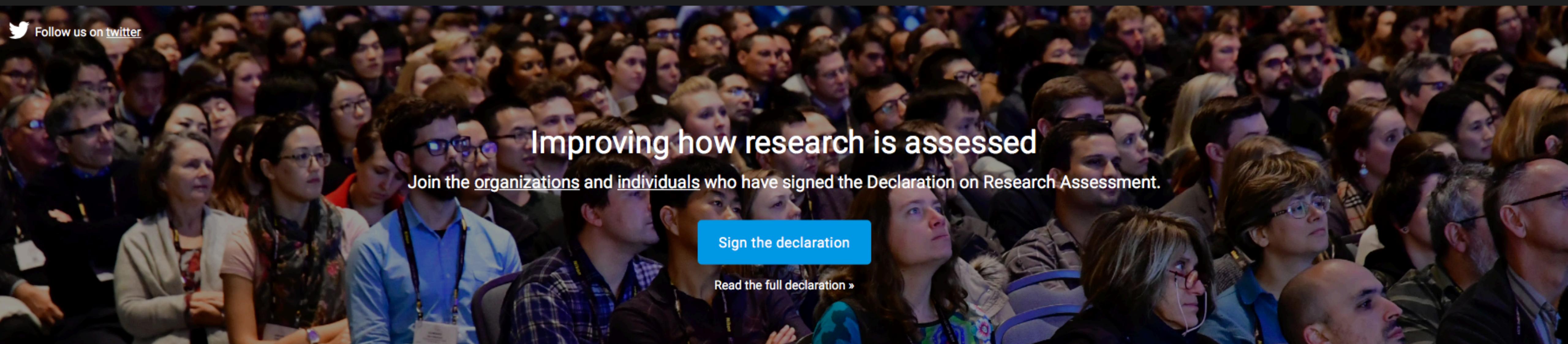


The Declaration on Research Assessment (DORA): Opening up the measures of success



[SIGN DORA](#) [READ THE DECLARATION](#) [SIGNERS](#) [BLOG](#) [GOOD PRACTICES](#) [CONTACT US](#)

Follow us on twitter



Improving how research is assessed

Join the [organizations](#) and [individuals](#) who have signed the Declaration on Research Assessment.

[Sign the declaration](#)

[Read the full declaration »](#)

Stephen Curry

Imperial College

Workshop on Open Citations | Bologna | 04 Sept 2018

The problem with citations...

< **Tweet**



Steve Fuller
@ProfSteveFuller

Replies to [@boronatix](#)

No, the academics themselves bought into the idea that citations are reputation indicators before the neoliberals and publishers figured it out. They just capitalized on it. We opened the door to our current predicament.

26/08/2018, 10:53

The problem with citations...

Tweet

Steve Fuller
@ProfSteveFuller

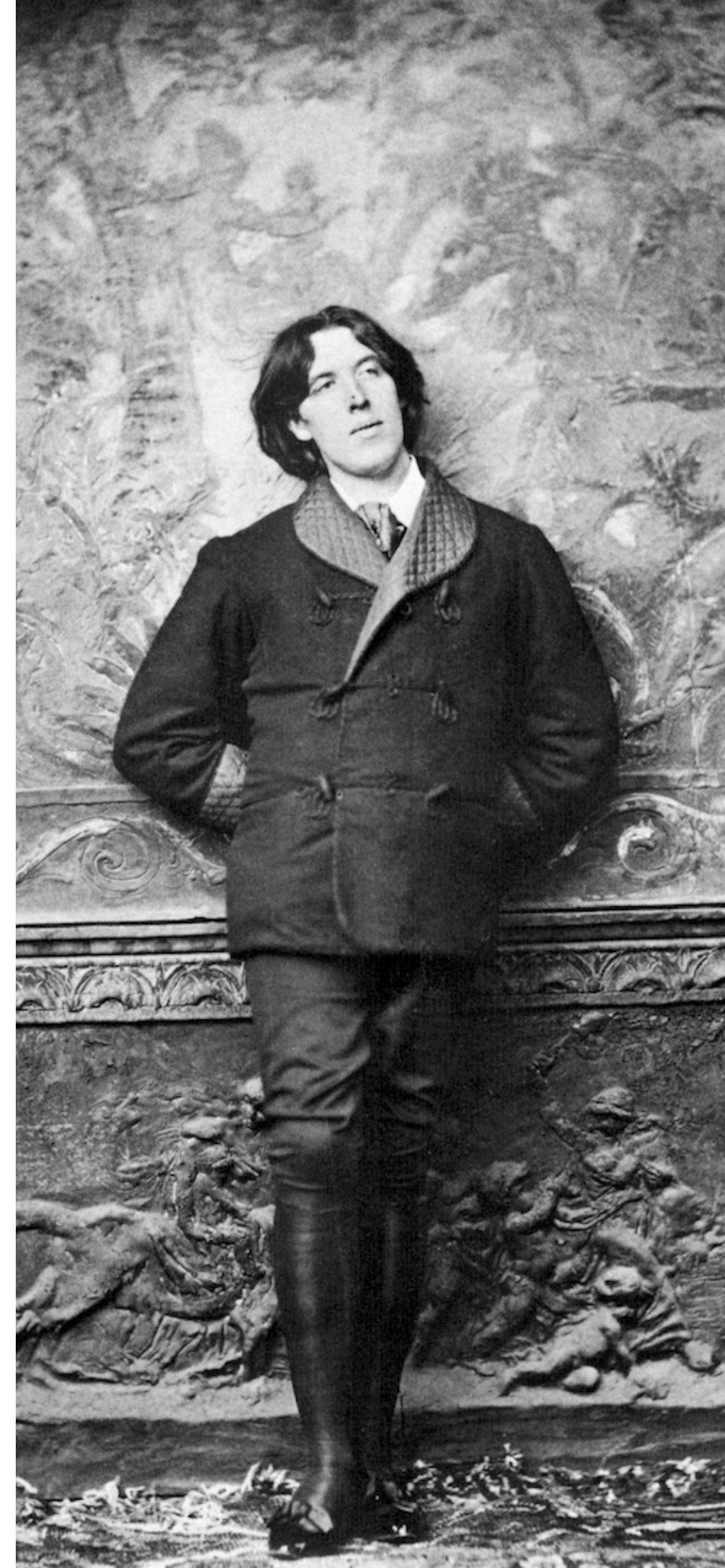
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26/08/2018, 10:53

"There is only one thing in the world worse than being talked about, and that is not being talked about."

Oscar Wilde



What do citations mean?



RESEARCH ARTICLE

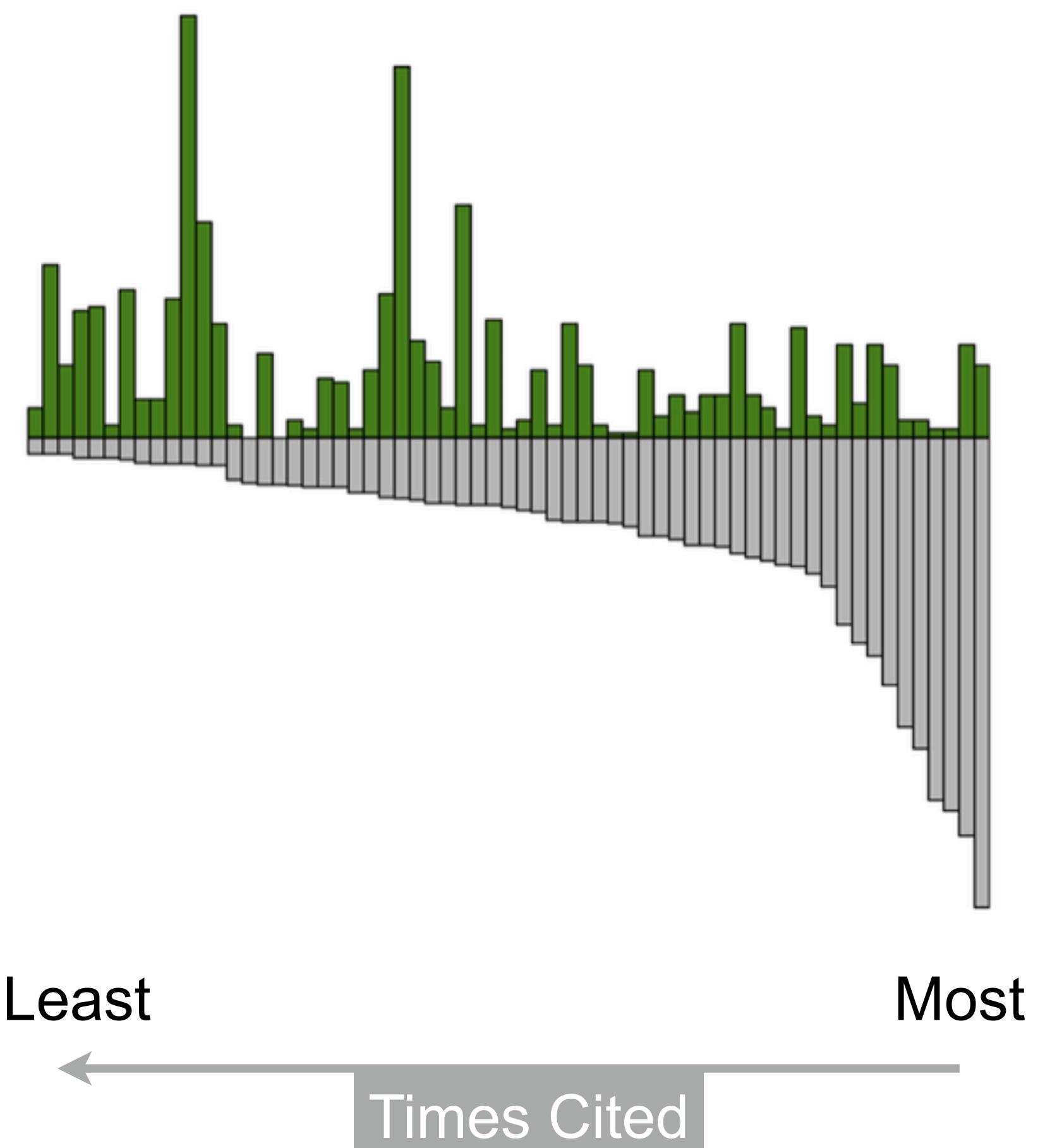
Perception of the importance of chemistry research papers and comparison to citation rates

Rachel Borchardt^{1*}, Cullen Moran¹, Stuart Cantrill², Chemjobber³, See Arr Oh⁴, Matthew R. Hartings^{1*}

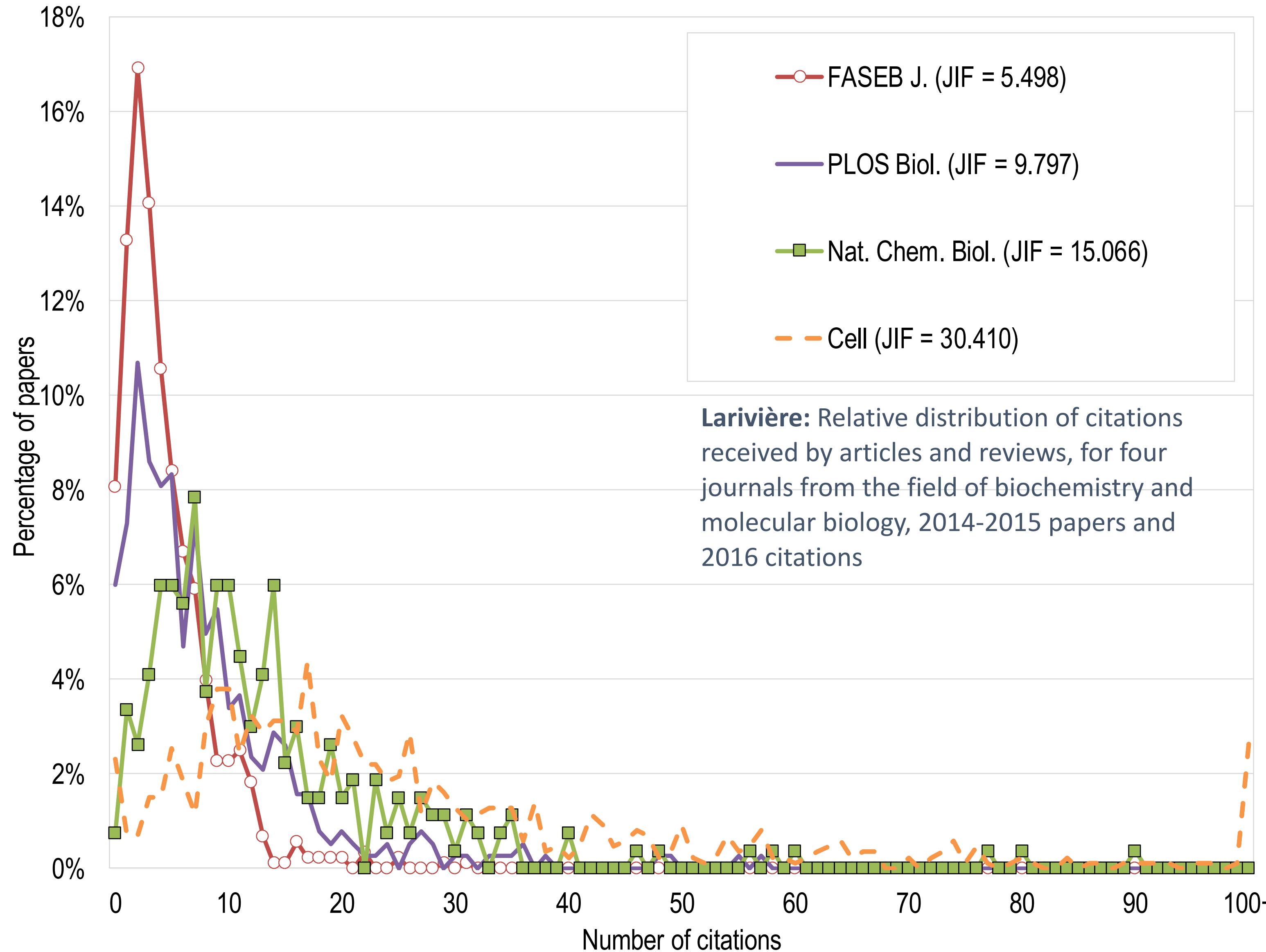
1 American University, NW, Washington, DC, United States of America, **2** Nature Chemistry, SpringerNature, London, United Kingdom, **3** Chemjobber, Shell, WV, United States of America, **4** Just Like Cooking, Krypton, KY, United States of America

several observations. The ability of respondents to predict the citation counts of established research is markedly lower than the ability of those counts to be predicted by the h-index of the corresponding author of each article. This observation is conserved even when only considering responses from chemists whose expertise falls within the subdiscipline that best describes the work performed in an article. Respondents view both cited papers and significant papers differently than papers that should be shared with chemists. We conclude from our results that peer judgements of importance and significance differ from metrics-based measurements, and that chemists should work with bibliometrists to develop metrics that better capture the nuance of opinions on the importance of a given piece of research.

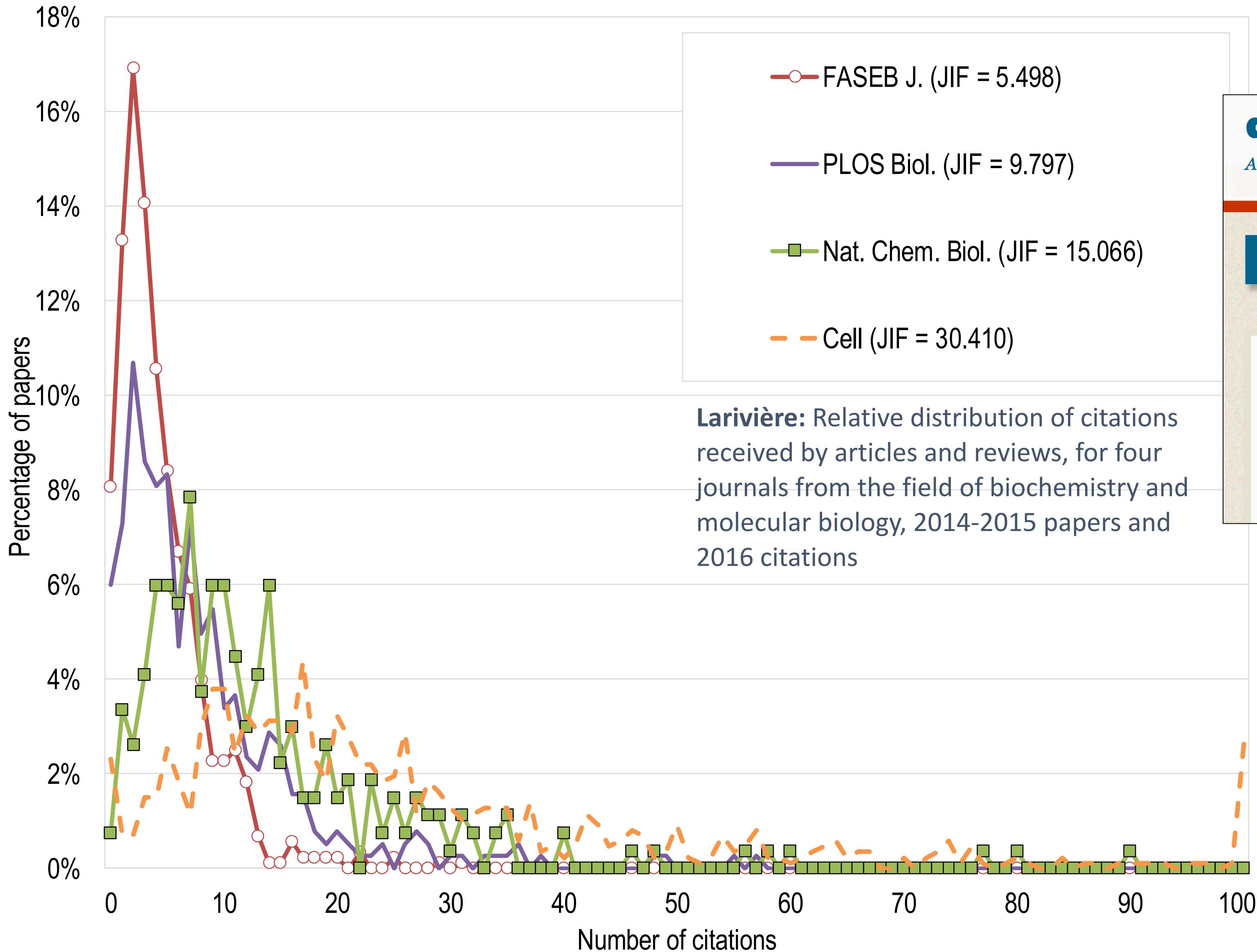
Times Chosen in Survey
(Most Significant)



Citation distributions: the importance of seeing the whole picture



Citation distributions: the importance of seeing the whole picture



quantixed

Analysis, more words, extra content

<https://quantixed.wordpress.com/2015/05/05/wrong-number-a-closer-look-at-impact-factors/>

Home

mechanochemistry.org

github

Royle Lab

About

Wrong Number: A closer look at Impact Factors

By quantixed on May 5, 2015

This is a long post about Journal Impact Factors. Thanks to Stephen Curry for encouraging me to post this.

- JIF based on highly skewed data
- JIF is a poor predictor of the number of citations of any given paper
- Reporting JIF to 3 d.p. is ridiculous; better to round to nearest 5 or 10

Citation distributions: the importance of seeing the whole picture

PNAS

bioRxiv beta
THE PREPRINT SERVER FOR BIOLOGY

HOME | Search

New Results

A simple proposal for the publication of journal citation distributions

bio Vincent Lariviere, bio Veronique Kiermer, bio Catriona J MacCallum, bio Marcia McNutt, bio Mark Patterson, bio Bernd Pulverer, bio Sowmya Swaminathan, bio Stuart Taylor, bio Stephen Curry
doi: <http://dx.doi.org/10.1101/062109>

This article is a preprint and has not been peer-reviewed [what does this mean?].

Abstract Info/History Metrics Supplementary material Preview PDF

Abstract

Although the Journal Impact Factor (JIF) is widely acknowledged to be a poor indicator of the quality of individual papers, it is used routinely to evaluate research and researchers. Here, we present a simple method for generating the citation distributions that underlie JIFs. Application of this straightforward protocol reveals the full extent of the skew of these distributions and the variation in citations received by published papers that is characteristic of all scientific journals. Although there are differences among journals across the spectrum of JIFs, the citation distributions overlap extensively, demonstrating that the citation performance of individual papers cannot be inferred from the JIF. We propose that this methodology be adopted by all journals as a move to greater transparency, one that should help to refocus attention on individual pieces of work and counter the inappropriate usage of JIFs during the process of research assessment.

Impact factor: a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period. The journal impact factor is calculated by dividing the number of current year citations to source items published in that journal during the previous 2 years.

Immediacy index: the average number of times an article is cited in the year it is published.

Cited half-life: the number of years, going back from the current *Journal Citation Reports* (JCR) year, that account for 50% of citations received by the journal in the current JCR year.

PNAS Citation Distribution 2013–2014 0–283 Citations

PNAS Citation Distribution 2013–2014 0–100+ Citations

Citation distribution: the distribution of citations to articles over the previous 2 years that contributes to the current JCR year's impact factor.

See "A simple proposal for the publication of journal citation distributions," by Vincent Lariviere, Veronique Kiermer, Catriona J MacCallum, Marcia McNutt, Mark Patterson, Bernd Pulverer, Sowmya Swaminathan, Stuart Taylor, and Stephen Curry. *BioRxiv*. Posted July 5, 2016. <http://dx.doi.org/10.1101/062109>.

Citation Distributions

Royal Society Journals

EMBO Journal

PLOS

PNAS

Nature

Nature Communications

Nature Chemistry

Scientific Reports

Acta Cryst. (A-F)

...

No promotion of JIFs

PLOS

eLife

ASM journals

...

From 2018:

Distributions available via WoS

Subscribers can share the graphic...

Can we make them fully open?

The problem with the h-index...



Stephen Curry

[FOLLOW](#)

Professor of Structural Biology, [Imperial College](#)

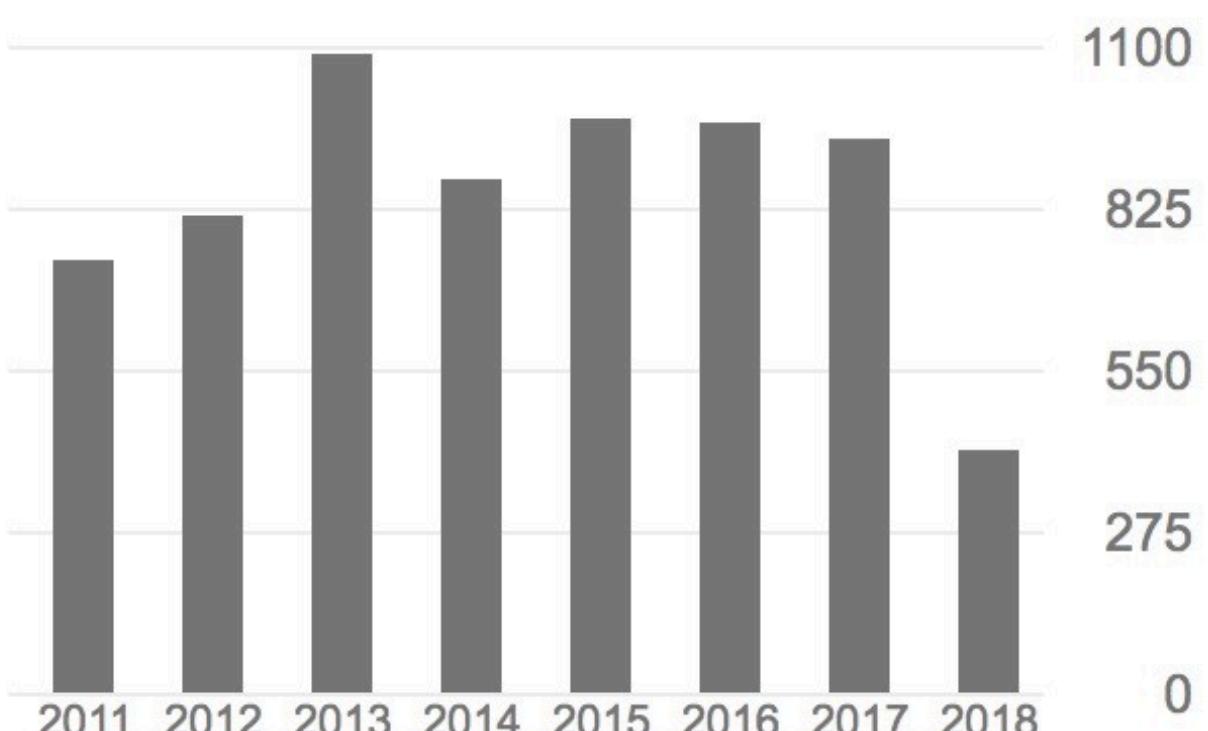
Verified email at imperial.ac.uk - [Homepage](#)

protein structure virology human serum albumin fmdv splicing

[VIEW ALL](#)[Cited by](#)[All](#) [Since 2013](#)

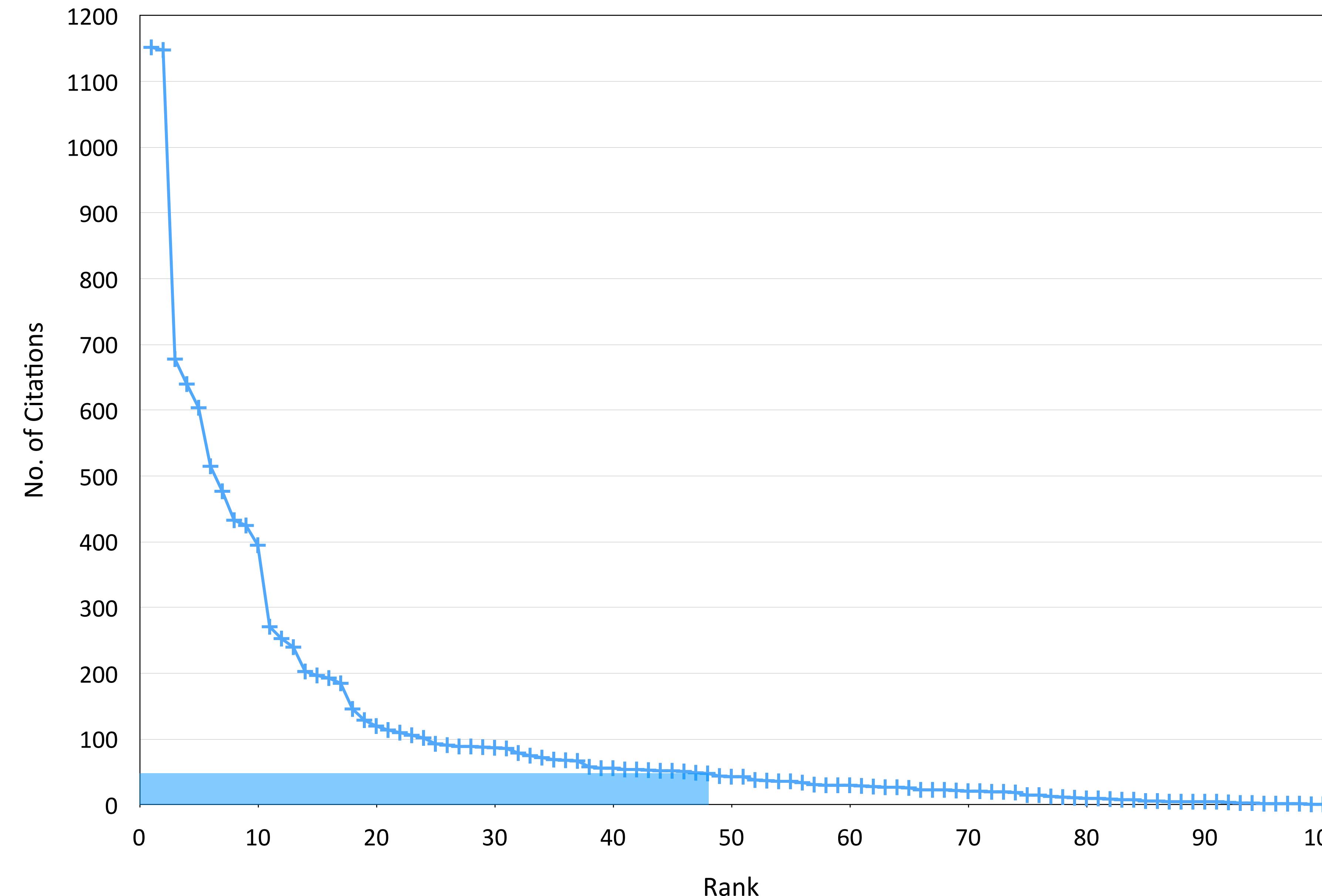
	All	Since 2013
Citations	11412	5289
h-index	48	33
i10-index	81	67

<input type="checkbox"/> TITLE	CITED BY	YEAR
<input type="checkbox"/> Crystal structure of human serum albumin complexed with fatty acid reveals an asymmetric distribution of binding sites S Curry, H Mandelkow, P Brick, N Franks Nature Structural and Molecular Biology 5 (9), 827	1153	1998
<input type="checkbox"/> Structural basis of the drug-binding specificity of human serum albumin J Ghuman, PA Zunszain, I Petitpas, AA Bhattacharya, M Otagiri, S Curry Journal of molecular biology 353 (1), 38-52	1149	2005
<input type="checkbox"/> Crystallographic analysis reveals common modes of binding of medium and long-chain fatty acids to human serum albumin1 AA Bhattacharya, T Grüne, S Curry Journal of molecular biology 303 (5), 721-732	678	2000
<input type="checkbox"/> Crystal structure analysis of warfarin binding to human serum albumin anatomy of drug site I I Petitpas, AA Bhattacharya, S Twine, M East, S Curry Journal of Biological Chemistry 276 (25), 22804-22809	639	2001
<input type="checkbox"/> The extraordinary ligand binding properties of human serum albumin M Fasano, S Curry, E Terreno, M Galliano, G Fanali, P Narciso, S Notari, ... IUBMB life 57 (12), 787-796	604	2005

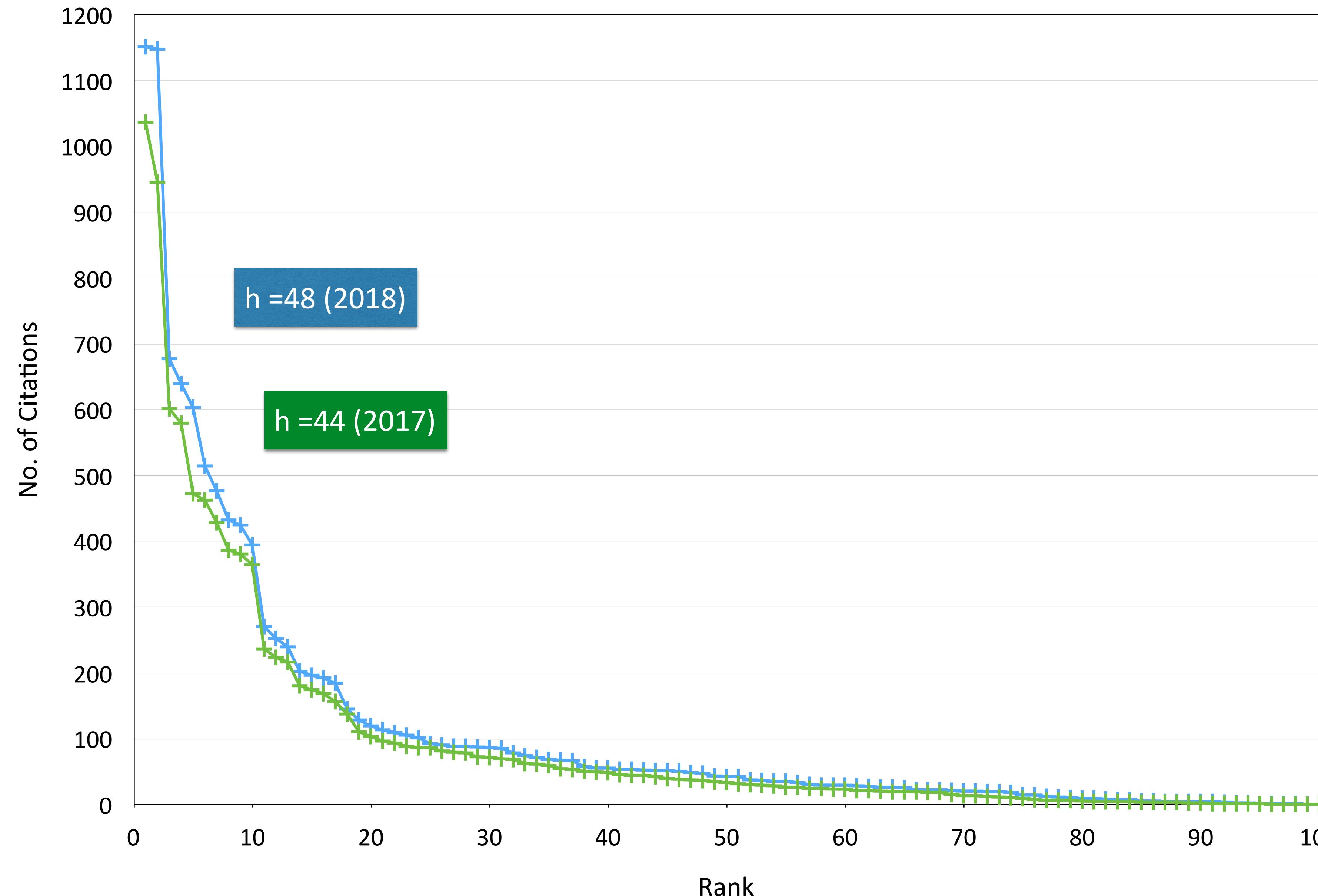
[Co-authors](#)[EDIT](#)

Ian Goodfellow
University of Cambridge

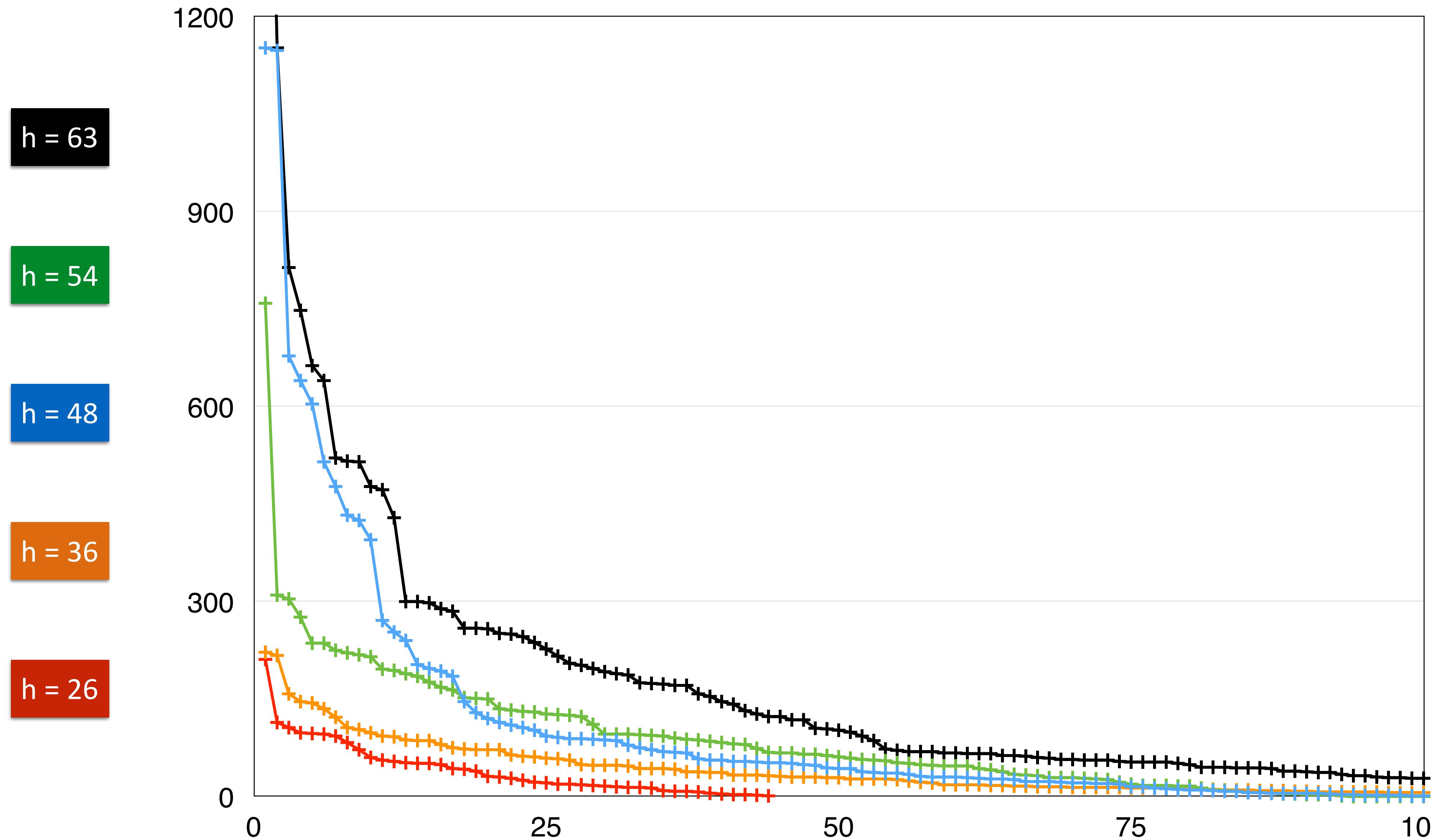
The h-index distribution: what does a h-index of 48 mean?



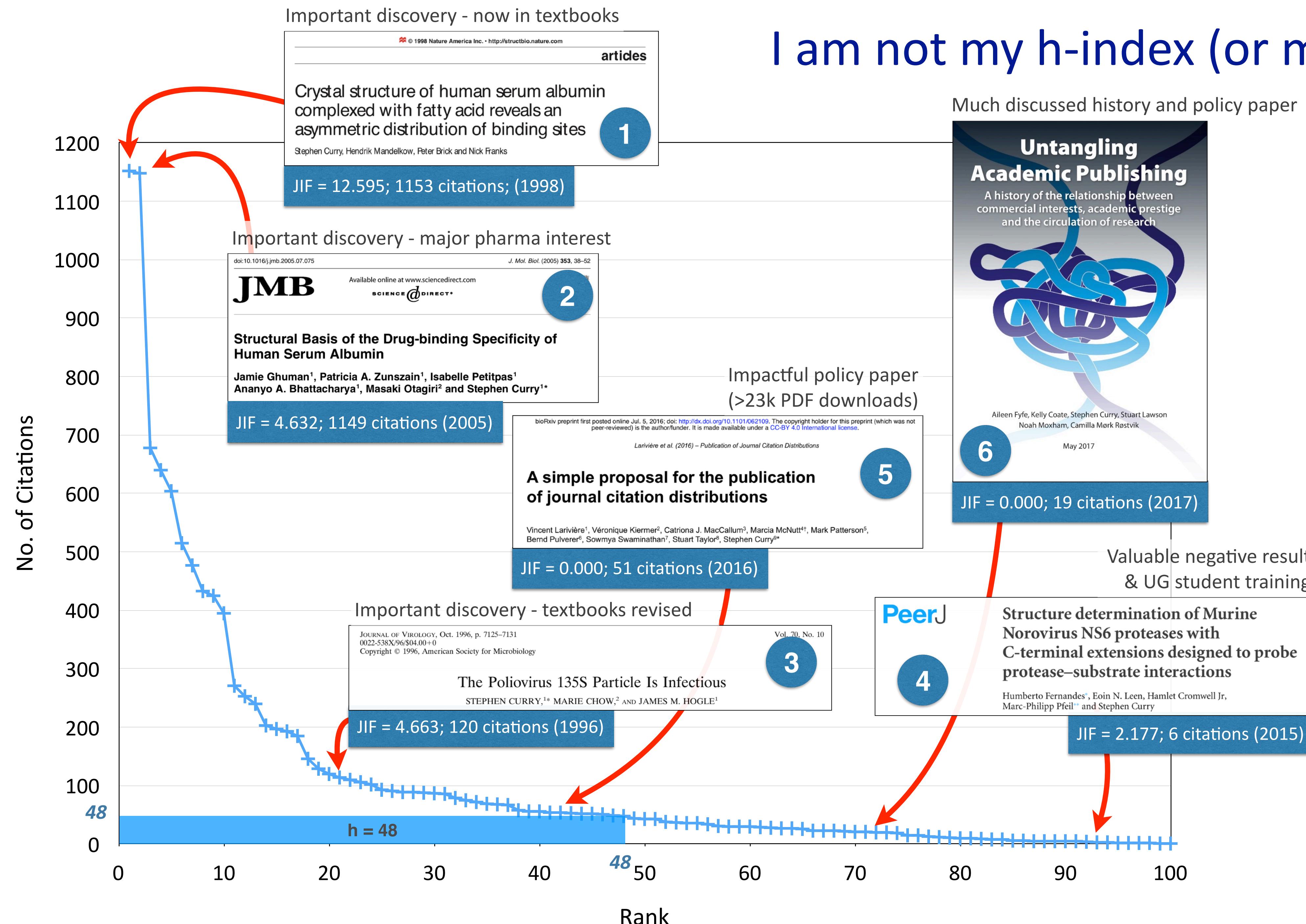
Did I get 10% better at science between 2017 and 2018?



Can I meaningfully compare my h-index compared to my colleagues?



I am not my h-index (or my JIFs)



Focusing researcher assessment on academic outputs is problematic

My Word

The mismeasurement of science

Peter A. Lawrence

Answer from the hero in Leo Szilard's 1948 story "The Mark Gable Foundation" when asked by a wealthy entrepreneur who believes that science has progressed too quickly, what he should do to retard this progress: "You could set up a foundation

release. The song writers would soon find that producing junky Christmas tunes and cosying up to DJs from top radio stations advanced their careers more than composing proper music. It is not so funny that, in the real world of science, dodgy evaluation criteria such as impact factors and citations are dominating minds, distorting behaviour and determining careers.

Modern science, particularly biomedicine, is being damaged by attempts to measure the quantity and quality of research. Scientists are ranked according to these measures, a ranking that impacts on funding of grants, competition for posts and

<http://dx.doi.org/10.1016/j.cub.2007.06.014>

OPEN ACCESS Freely available online

Essay

How to Make More Published Research True

John P. A. Ioannidis^{1,2,3,4*}

<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001747>

Sick of Impact Factors

Posted on August 13, 2012 by Stephen

I am sick of impact factors and so is science.

The impact factor might have started out as a good idea, but its time has come and gone. [Conceived by Eugene Garfield](#) in the 1970s as a useful tool for research libraries to judge the relative merits of journals when allocating their subscription budgets, the impact factor is [calculated](#) annually as the mean number of citations to articles published in any given journal in the two preceding years.



<http://occamsotypewriter.org/scurry/2012/08/13/sick-of-impact-factors/>

THE CULTURE OF SCIENTIFIC RESEARCH IN THE UK

- In some cases the culture of scientific research does not support or encourage scientists' goals and the activities that they believe to be important for the production of high quality science.
- There seem to be widespread misperceptions or mistrust among scientists about the policies of those responsible for the assessment of research.

<http://nuffieldbioethics.org/project/research-culture/>

Focusing researcher assessment on academic outputs is problematic

Setting the Agenda: ‘Who are we answering to?’

Posted on [January 24, 2018](#) by [Kaitlyn Hair](#)

By **Frank Miedema, PhD** [@MiedemaF](#)

It is now widely acknowledged that we have a serious reproducibility crisis in biomedical and the social sciences at least. Despite the personal ideals and good intentions, in this incentive and reward system researchers find themselves pursuing not the work that benefits public or preventive health or patient care the most, but work that gives most academic credit and is better for career advancement.

The tricky balance between academic freedom and academic responsibility



Saving Science

Science isn't self-correcting, it's self-destructing. To save the enterprise, scientists must come out of the lab and into the real world.

Daniel Sarewitz

The story of how things got to this state is difficult to unravel, in no small part because the scientific enterprise is so well-defended by walls of hype, myth, and denial. But much of the problem can be traced back to a bald-faced but beautiful lie upon which rests the political and cultural power of science. This lie received its most compelling articulation just as America was about to embark on an extended period of extraordinary scientific, technological, and economic growth. It goes like this:

Scientific progress on a broad front results from the free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for exploration of the unknown.



University of Bologna

Academic responsibility: in tune with ideals and political realities

Wikimedia Commons (Dona Eidam/USGS)



“People in this country have had enough of experts.”

Michael Gove, MP

Glyn Davies @glyndaviesmp

Personally, never thought of academics as 'experts'. No experience of the real world.

RETWEETS LIKES
159 104

4:24 PM - 29 Oct 2016



Donald J. Trump @realDonaldTrump · 3d
I just cannot state strongly enough how totally dishonest much of the Media is. Truth doesn't matter to them, they only have their hatred & agenda. This includes fake books, which come out about me all the time, always anonymous sources, and are pure fiction. Enemy of the People!

53.4K

31.2K

125K



Academic responsibility: in tune with open science

**Peer review
and scientific
publishing**
Occam's corner

Stephen Curry

@Stephen_Curry

Monday 7 September
2015 11.00 BST



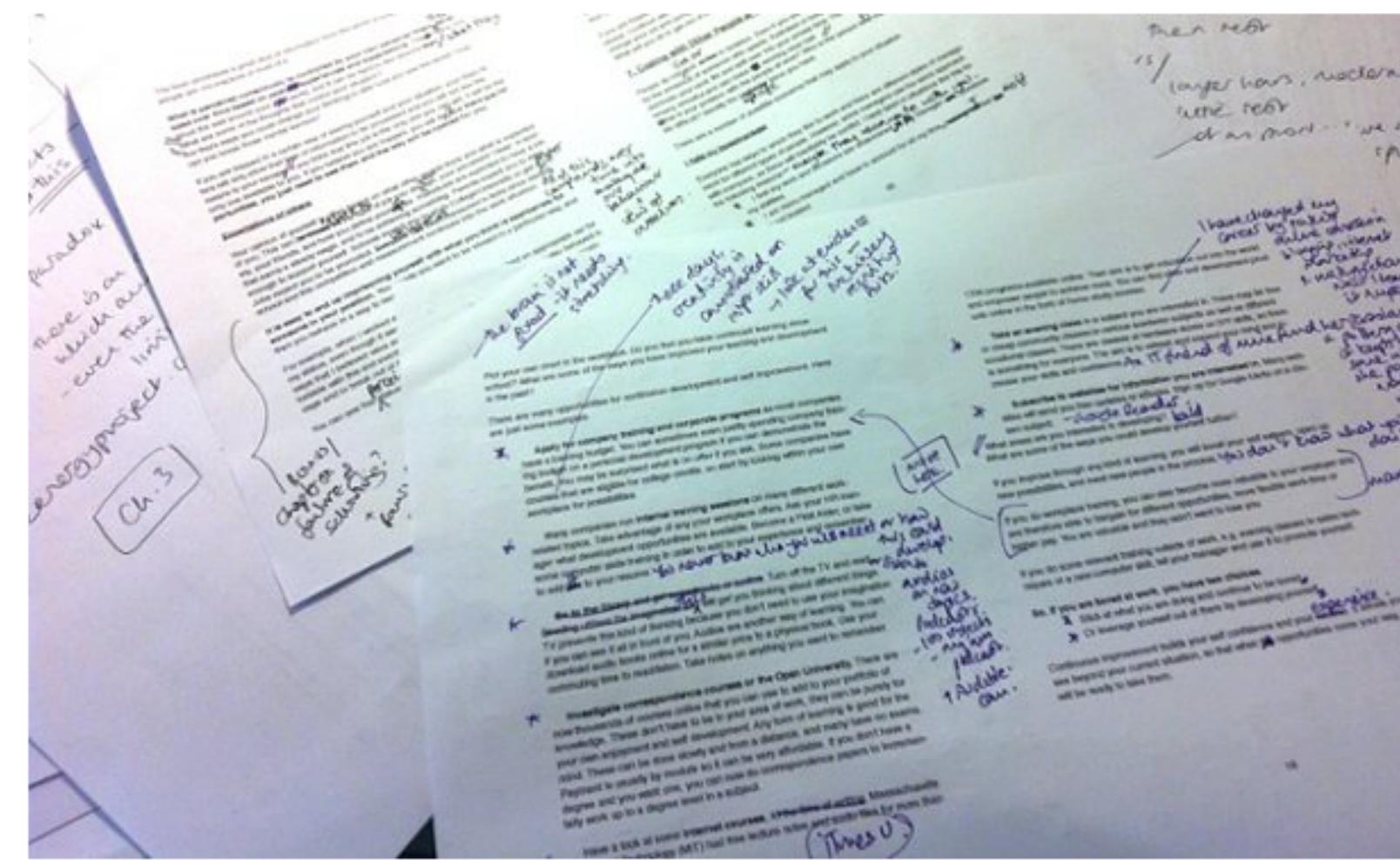
Shares Comments

1 14

Save for later

Peer review, preprints and the speed of science

Peer review is often claimed to be the guarantor of the trustworthiness of scientific papers, but it is a troubled process. Preprints offer a way out



Subediting skills for writers Photograph: Joanna Penn/Flickr

A few weeks ago my collaborators and I submitted our latest paper to a scientific journal. We have been investigating how noroviruses subvert the molecular machinery of infected cells and have some interesting results. If it passes peer review, our paper could be published in three or four months' time. If it's

Science
Occam's corner

Zika virus initiative reveals deeper malady in scientific publishing Stephen Curry

Moves to speed up the release of Zika virus research in response to the public health crisis highlight a systemic failure in scientific publishing. Help could be at hand at the ASAPbio meeting today in the USA

Contact author

@Stephen_Curry

Tuesday 16 February
2016 11.54 GMT



Shares Comments

539 4

Save for later



Too far behind a screen - Zika scientists are set to benefit from the rapid release of research on the virus
Photograph: Victor Moriyama/Getty Images

In response to the rapid spread of Zika virus across Central and South America, now declared to be an international public health emergency by the World Health Organisation, a consortium of research funders, institutes and publishers have committed to sharing data and results relevant to the crisis "as rapidly and openly as possible."

Preprints: faster communication
Focus on the content, not the journal
Largest possible audience (for sharing & scrutiny)
Fosters open peer review

Data sharing: re-use & scrutiny benefits
Better for changing the world

Academic responsibility, open science & the EU



EXECUTIVE SUMMARY

Open Science represents an approach to research that is collaborative, transparent and accessible¹. There are a wide range of activities that come under the umbrella of Open Science that include open access publishing, open data, open peer review and open research. It also includes citizen science, or more broadly, stakeholder engagement, where non specialists engage directly in research. Open Science goes hand in hand with research integrity and requires legal and ethical awareness on the part of researchers. A driver for Open Science is improving the transparency and validity of research as well as in regards to public ownership of science, particularly that which is publicly funded.

Evaluation of Research Careers fully acknowledging Open Science Practices

Rewards, incentives and/or recognition for researchers
practicing Open Science

2017

Academic responsibility, open science & the EU



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Publication paywalls are withholding a substantial amount of research results from a large fraction of the scientific community and from society as a whole. This constitutes an absolute anomaly, which hinders the scientific enterprise in its very foundations and hampers its uptake by society. Monetising the access to new and existing research results is profoundly at odds with the ethos of science. There is no longer any justification for this state of affairs to prevail and the subscription-based model of scientific publishing, including its so-called 'hybrid' variants, should therefore be terminated. In the 21st century, science publishers should provide a service to help researchers disseminate their results. They may be paid fair value for the services they are providing, but **no science should be locked behind paywalls!**

Plan S (Announced today)

Academic responsibility, open science & the EU



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2017

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Plan S (Announced today)

But: does accountability too readily become auditability (through metricisation)?

Squaring the circle: responsibility and responsible metrics



<http://sf.dora.org>

NATURE | COMMENT

Bibliometrics: The Leiden Manifesto for research metrics

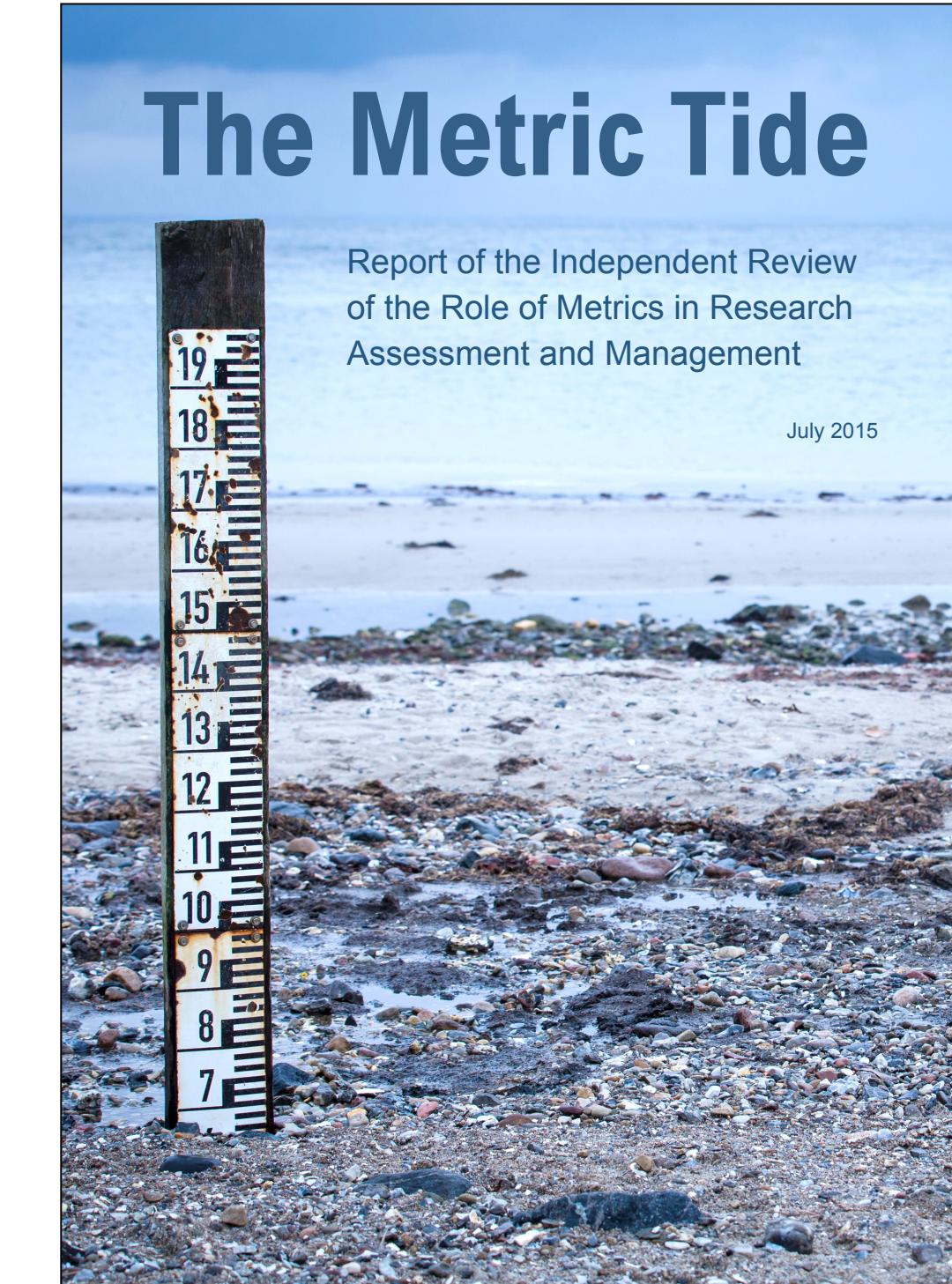
Diana Hicks, Paul Wouters, Ludo Waltman, Sarah de Rijcke & Ismael Rafols

22 April 2015

Use these ten principles to guide research evaluation, urge Diana Hicks, Paul Wouters and colleagues.

[PDF](#) [Rights & Permissions](#)

Subject terms: Careers • Research management • Publishing

An illustration of Auguste Rodin's sculpture "The Thinker". The figure is shown in a crouched, contemplative pose, resting his chin on his hand. He is suspended from a hook by a chain, symbolizing the weight and burden of research metrics. The background is a soft-focus landscape.

Squaring the circle: responsibility and responsible metrics



<http://sfdora.org>

NATURE | COMMENT

Bibliometrics: The Leiden Manifesto for research metrics

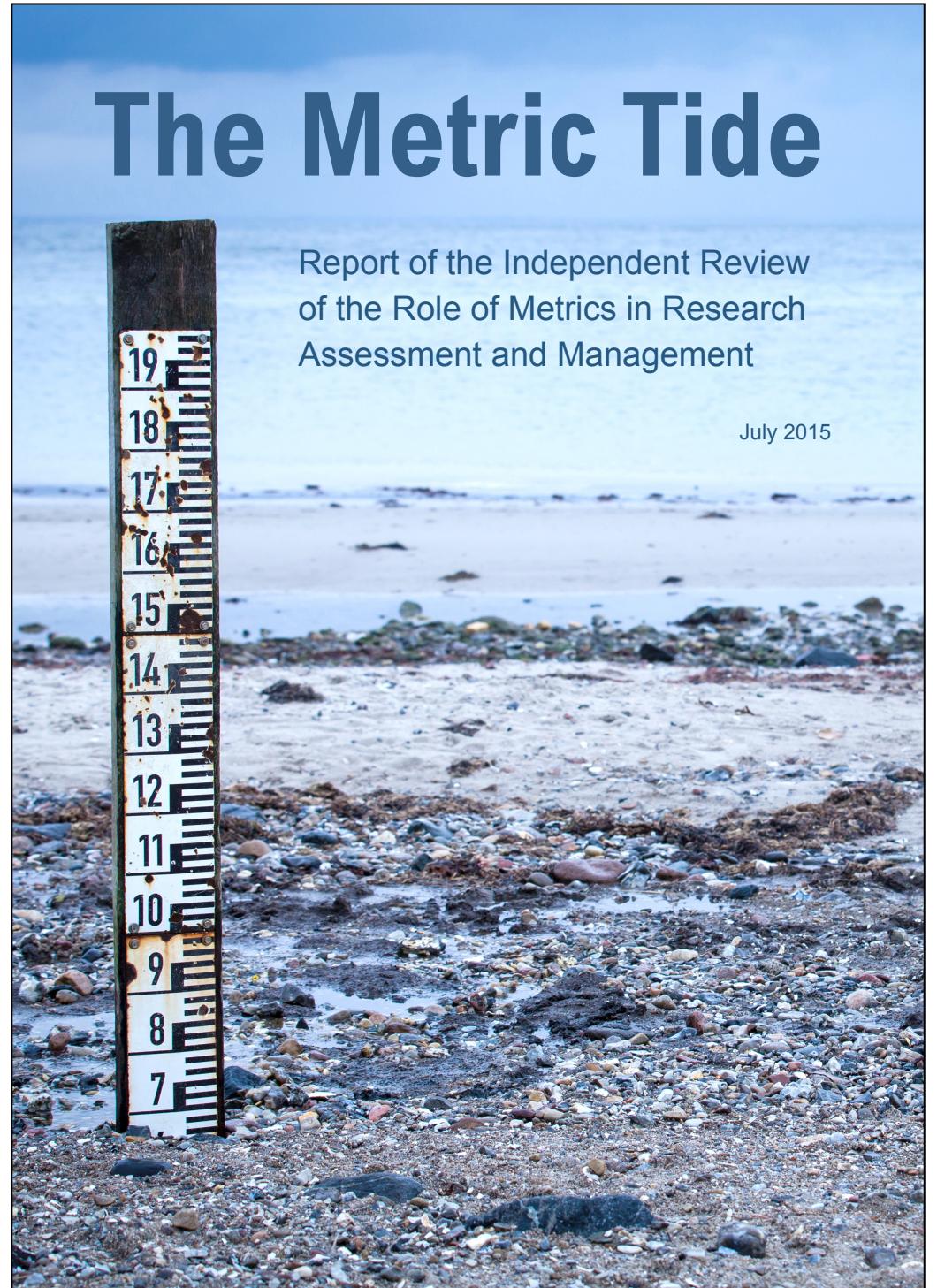
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[PDF](#) [Rights & Permissions](#)

Subject terms: Careers • Research management • Publishing

An illustration of the Rodin sculpture "The Thinker" is shown sitting on a mechanical balance scale, symbolizing the concept of "squaring the circle" or finding balance between research evaluation and its impact.

"The English are always degrading truths into facts. When a truth becomes a fact, it loses all its intellectual value."



Research evaluation through narrative



Fewer numbers, better science

Scientific quality is hard to define, and numbers are easy to look at. But bibliometrics are warping science – encouraging quantity over quality.

Leaders at two research institutions describe how they do things differently.

<http://www.nature.com/news/fewer-numbers-better-science-1.20858>

Researcher assessment at UMC Utrecht

1. Research, publications, grants
2. Managerial & academic duties
3. Mentoring & teaching
4. Clinical work (if applicable)
5. Entrepreneurship & outreach

DORA (sfldora.org)

Now 5 years old; >12,000 individuals & >500 organisations signed

New funding

New steering group

New URL - sfldora.org

New Roadmap:

1. Increase awareness of the need to develop alternatives to the JIF
2. Research and promote best practice in research assessment.
3. Extend the global and disciplinary impact of DORA

New international advisory board (coming soon...)

WORLD VIEW

A personal take on events



Words were a good start – now it is time for action

Five years ago, the Declaration on Research Assessment was a rallying point. It must now become a tool for fair evaluation, urges Stephen Curry.

Declarations are bound to fall short. The 240-year-old United States Declaration of Independence holds it self-evident that "all men [sic] are created equal", but equality remains a far-off dream for many Americans.

The San Francisco Declaration on Research Assessment (DORA; <https://sfldora.org>) is much younger, but similarly idealistic. Conceived by a group of journal editors and publishers at a meeting of the American Society for Cell Biology (ASCB) in December 2012, it proclaims a pressing need to improve how scientific research is evaluated, and asks scientists, funders, institutions and publishers to forswear using journal impact factors (JIFs) to judge individual research output.

DORA's aim is to world in which the content of a research paper matters more than the impact factor of the journal in which it appears. Thousands of individuals and hundreds of research organizations now agree and have signed up. Momentum is building, particularly in the United Kingdom, where the number of university signatories has trebled in the past two years. This week, all seven UK research councils announced their support.

Impact factors were never meant to be a metric for individual papers, let alone individual people. They're an average of the skewed distribution of citations accumulated by papers in a given journal over two years. Not only do these averages hide huge variations between papers in the same journal, but citations are imperfect measures of quality and influence. High-impact-factor journals may publish a lot of top-notch science, but we should not outsource evaluation of individual researchers and their outputs to seductive journal metrics.

Most agree that yoking career rewards to JIFs is distorting science. Yet the practice seems impossible to root out. In China, for example, many universities pay impact-factor-related bonuses, inspired by unwritten norms of the West. Scientists in parts of Eastern Europe cling to impact factors as a crude bulwark against cronyism. More worryingly, processes for JIF-free assessment have yet to gain credibility even at some institutions that have signed DORA. Stories percolate of research managers demanding high impact factors. Job and grant applicants feel that they can't compete unless they publish in prominent journals. All are fearful of shrugging off the familiar harnesses.

So, DORA's job now is to accelerate the change it called for. I feel the need for change whenever I meet postdocs. Their curiosity about the world and determination to improve it burns bright. But their desires to pursue the most fascinating and most impactful questions are subverted by our systems of evaluation. As they apply for their first permanent positions, they are already calculating how to manoeuvre within the JIF-dependent managerialism of modern science.

There have been many calls for something better, including the Leiden Manifesto and the UK report 'The Metric Tide', both released in

2015. Like DORA, these have changed the tenor of discussions around researcher assessment and paved the way for change.

It is time to shift from making declarations to finding solutions. With the support of the ASCB, Cancer Research UK, the European Molecular Biology Organization, the biomedical funder the Wellcome Trust and the publishers The Company of Biologists, eLIFE, F1000, Hindawi and PLOS, DORA has hired a full-time community manager and revamped its steering committee, which I lead. We are committed to getting on with the job.

Our goal is to discover and disseminate examples of good practice, and to boost the profile of assessment reform. We will do that at conferences and in online discussions; we will also establish regional nodes across the world, run by volunteers who will work to identify and address local issues.

This week, for example, DORA is participating in a workshop at which the Forum for Responsible Metrics — an expert group established following the release of 'The Metric Tide' — will present results of the first UK-wide survey of research assessment. This will bring broader exposure to what universities are thinking and doing, and put the spotlight on instances of good and bad practice.

We have to get beyond complaining, to find robust, efficient and bias-free assessment methods. Right now, there are few compelling options. I favour concise one- or two-page 'bio-sketches', similar to those rolled out in 2016 by the University Medical Centre Utrecht in the Netherlands.

These let researchers summarize their most important research contributions, plus mentoring, societal engagement and other valuable activities. This approach could have flaws. Perhaps it gives too much leeway for spin. But, as scientists, surely we can agree that it's worth doing the experiment to properly evaluate evaluation.

This is hard stuff: we need frank discussions that grind through details, with researchers themselves, to find out what works and to forestall problems. We need to be mindful of the damage wrought to the careers of women and minorities by bias in peer review and in subjective evaluations. And we need to join in with parallel moves towards open research, data and code sharing, and the proper recognition of scientific reproducibility.

Declarations such as DORA are important; credible alternatives to the status quo are more so. True success will mean every institution, everywhere in the world, bragging about the quality of their research-assessment procedures, rather than the size of their impact factors. ■

Stephen Curry is a professor of structural biology and assistant provost for equality, diversity and inclusion at Imperial College London. He is also chair of the DORA steering group. E-mail: s.curry@imperial.ac.uk

FEBRUARY 2018 | VOL 554 | NATURE | 147

<https://www.nature.com/articles/d41586-018-01642-w>

The screenshot shows the DORA website homepage. At the top, there are links for 'SIGN DORA', 'READ THE DECLARATION', 'SIGNERS', 'BLOG', and 'GOOD'. Below this is a large image of a diverse audience at a conference. Overlaid on the image is the text 'Improving how research is assessed' and 'Join the organizations and individuals who have signed the Declaration on Research Assessment.' Below the image are two buttons: 'Sign the declaration' and 'Read the full declaration'.

On the right side, there are logos for several organizations: ASCB (an international forum for cell biology), Cancer Research UK, The Company of Biologists, eLIFE, EMBO (excellence in life sciences), F1000Research (Open for Science), Hindawi, PLOS, and Wellcome.

Thank You