

# Les petits arrangements dans les publications\*

Hervé Maisonneuve

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)

Orléans, 13 juin 2017

\* Pourquoi un système, une culture poussent des chercheurs honnêtes à dériver ?

# Que répondez-vous ?

Comment évaluer la qualité d'une revue ? la qualité d'un article ?

Quelles sont les missions des revues scientifiques ?

Bonnes pratiques et critères de qualité des revues ?

Citez des biais dans les articles

Qu'appelle-t-on embellissement des articles ?

Des images manipulées ?

Est-ce que des biais de citations existent ?

À quoi sert le facteur d'impact ?

Est-ce que les statistiques sont bien utilisées dans les articles ?

Citez des pratiques préjudiciables en recherche !

Avez-vous torturé des données ?

Est-ce que la science publiée est reproductible ?

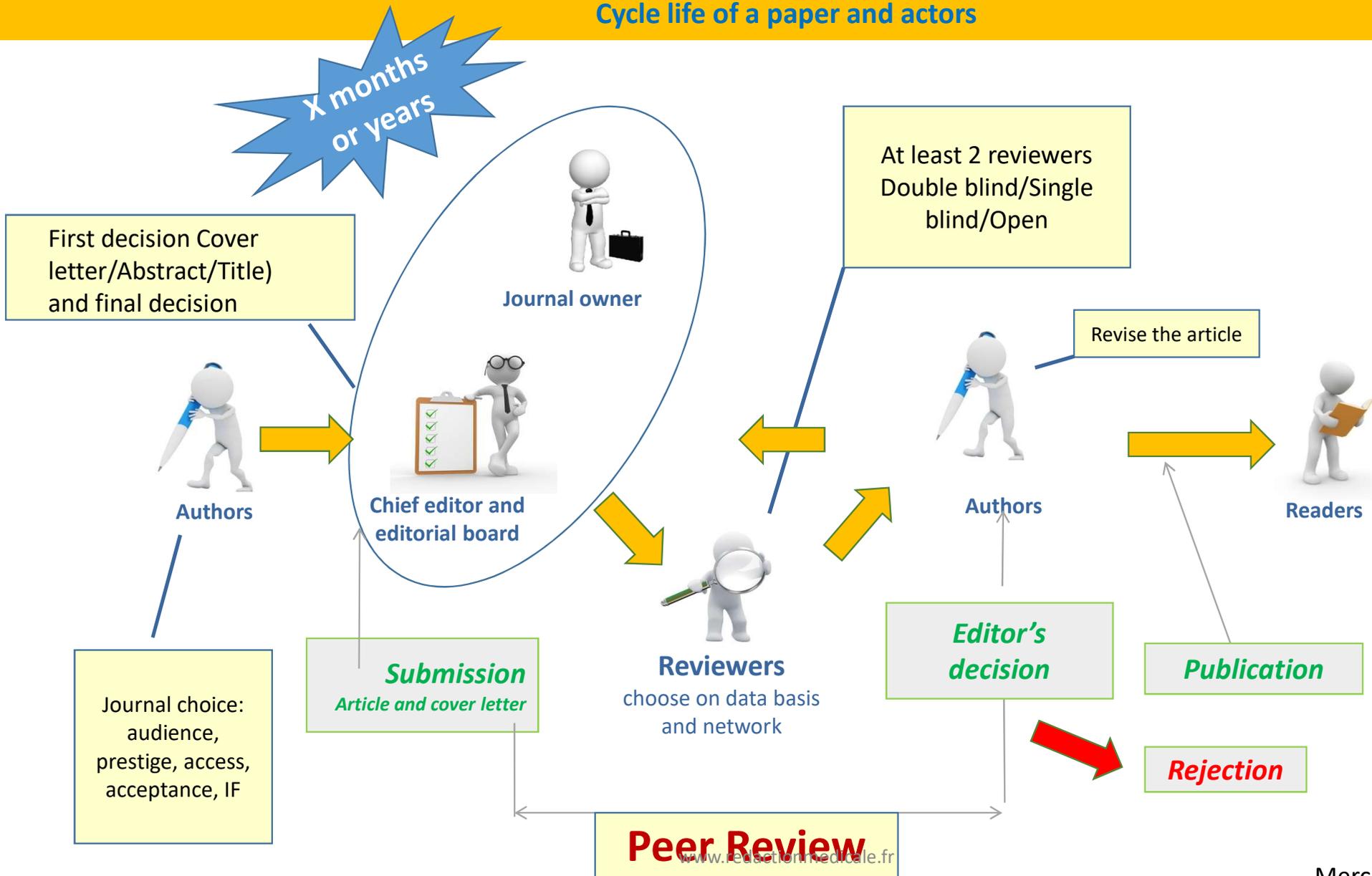
## Liens d'intérêts

- Rédacteur de [www.redactionmedicale.fr](http://www.redactionmedicale.fr)
- Consultant en rédaction scientifique, et intégrité scientifique
- Groupe de travail HAS « Qualité des revues »
- Institut International de Recherche et d'Action sur la Fraude et le Plagiat Académiques (Conseil scientifique, Genève)
- Groupe de travail 'Intégrité scientifique' pour le secrétariat à l'enseignement supérieur et à la recherche
- Rédacteur adjoint de 
- Auteur de 'La rédaction médicale', Doin, 2010
- Rédacteur de 'Science Editors' Handbook', EASE 2013

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)



# Cycle life of a paper and actors





## The natural selection of bad science

Paul E. Smaldino<sup>1</sup> and Richard McElreath<sup>2</sup>

<sup>1</sup>Cognitive and Information Sciences, University of California, Merced, CA 95343, USA

<sup>2</sup>Department of Human Behavior, Ecology, and Culture, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

**R. Soc. open sci. 2016; 3: 160384.**

<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0020124>

RESEARCH ARTICLE

## Questionable research practices among italian research psychologists

Franca Agnoli<sup>1</sup>\*, Jelte M. Wicherts<sup>2</sup>, Coosje L. S. Veldkamp<sup>2</sup>, Paolo Albiero<sup>1</sup>,  
Roberto Cubelli<sup>3</sup>

<sup>1</sup> Department of Developmental Psychology and Socialization, University of Padova, Padova, Italy,  
<sup>2</sup> Department of Methodology and Statistics, Tilburg University, Tilburg, Netherlands, <sup>3</sup> Department of  
Psychology and Cognitive Science, University of Trento, Trento, Italy

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0172792>

## Who is afraid of reviewers' comments? Or, why anything can be published and anything can be cited

John P. A. Ioannidis<sup>\*†‡</sup>, Athina Tatsioni<sup>\*†</sup> and Fotini B. Karassa<sup>\*</sup>

<sup>\*</sup>University of Ioannina School of Medicine, Ioannina, Greece, <sup>†</sup>Tufts University School of Medicine and Institute for Clinical Research and Health Policy Studies, Boston, MA, USA, <sup>‡</sup>Harvard School of Public Health, Boston, MA, USA

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2362.2010.02272.x/full>

Essay

## Why Most Published Research Findings Are False

August 2005

John P. A. Ioannidis

*Peut-on croire les publications ?*  
**Biais et embellissements  
polluent la science**

SCIENCE...  
& pseudo-sciences

*Hervé Maisonneuve*

**Science et pseudo-sciences 2016; 318:**

**Le constat : quelle est la qualité des articles ?**

Comment expliquer la situation ?

Que suggérer pour améliorer ?

# X % de 7 321 références avaient des erreurs



## Quotation accuracy in medical journal articles—a systematic review and meta-analysis

27 octobre 2015

Hannah Jergas<sup>1,2</sup> and Christopher Baethge<sup>2,3</sup>

# 25 % de 7 321 références avaient des erreurs



## Quotation accuracy in medical journal articles—a systematic review and meta-analysis

27 octobre 2015

Hannah Jergas<sup>1,2</sup> and Christopher Baethge<sup>2,3</sup>

Out of 559 studies screened we included 28 in the main analysis, and estimated major, minor and **total quotation error rates** of 11,9%, 95% CI [8.4, 16.6] 11.5% [8.3, 15.7], and **25.4% [19.5, 32.4]**. While heterogeneity was substantial, even the lowest estimate of total quotation errors was considerable (6.7%). Indirect references accounted for less than one sixth of all quotation problems. The findings remained robust in a number of sensitivity and subgroup analyses (including risk of bias analysis) and in meta-regression.

<https://peerj.com/articles/1364/>

www.redactionmedicale.fr

# Statistiques

Original Investigation

Evolution of Reporting  $P$  Values in the Biomedical Literature, 1990-2015

David Chavalarias, PhD; Joshua David Wallach, BA; Alvin Ho Ting Li, BHSc; John P. A. Ioannidis, MD, DSc

JAMA 2016;315:1141-8.

**CONCLUSIONS** In this analysis of  $P$  values reported in MEDLINE abstracts and in PMC articles from 1990-2015, more MEDLINE abstracts and articles reported  $P$  values over time, almost all abstracts and articles with  $P$  values reported statistically significant results, and, in a subgroup analysis, few articles included confidence intervals, Bayes factors, or effect sizes. Rather than reporting isolated  $P$  values, articles should include effect sizes and uncertainty metrics.

Figure 1. Proportion of MEDLINE Abstracts Reporting at Least 1  $P$  Value in the Period 1990-2015

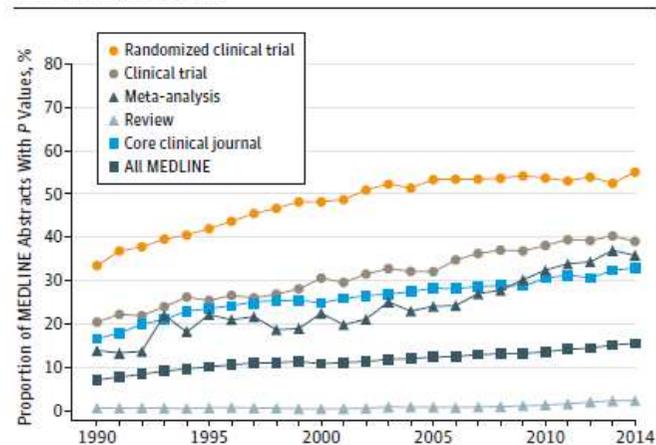
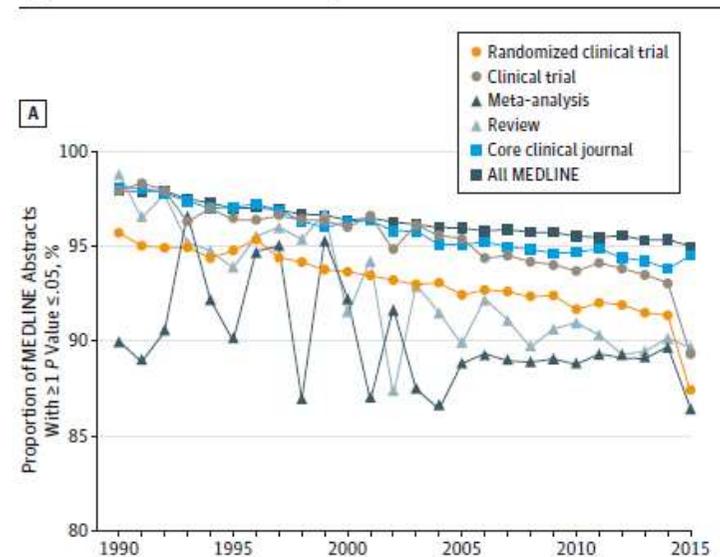


Figure 3. Evolution of  $P$  Values Reported in the Period 1990-2015





# 3267 p values 2008, 12 numéros de 3 revues

THE QUARTERLY JOURNAL OF EXPERIMENTAL PSYCHOLOGY  
2012, 65 (11), 2271–2279

 Psychology Press  
Taylor & Francis Group

## A peculiar prevalence of $p$ values just below .05

E. J. Masicampo<sup>1</sup>, and Daniel R. Lalande<sup>2</sup>

<sup>1</sup>Department of Psychology, Wake Forest University, Winston-Salem, NC, USA

<sup>2</sup>Department of Health Sciences, Université du Québec à Chicoutimi, Chicoutimi, QC, Canada

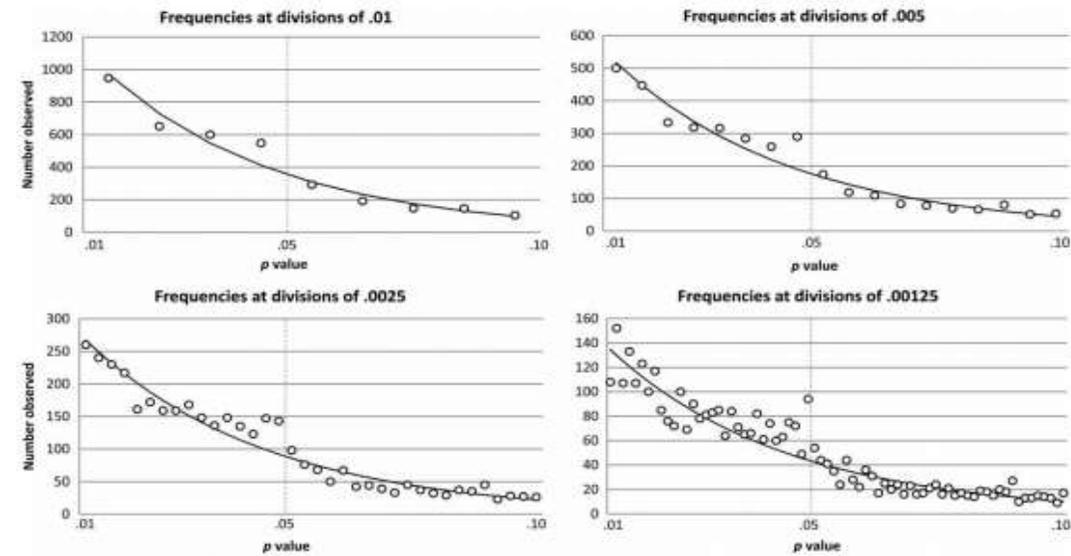
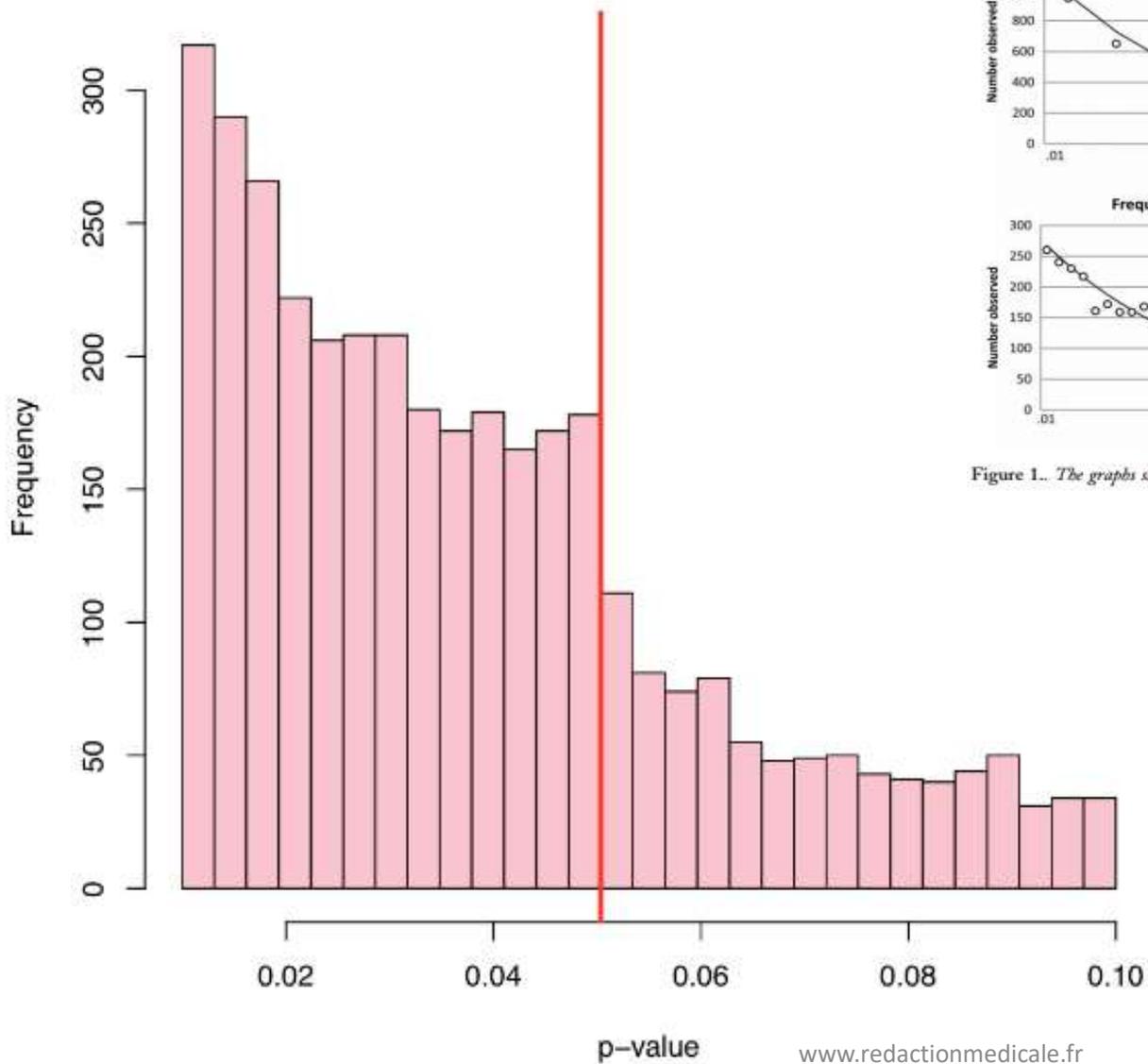


Figure 1.. The graphs show the distribution of 3,627 p values from three major psychology journals.

Larry Wasserman

<https://www.graphpad.com/www/data-analysis-resource-center/blog/a-peculiar-prevalence-of-p-values-just-below-051/>

# Les biais

- Biais d'opportunité, de convenance sociale
- Biais de citation

BMJ

How citation distortions create unfounded authority:  
analysis of a citation network

Steven A Greenberg, associate professor of neurology

**BMJ 2009;339:b2680**

RESEARCH

Opportunistic Biases

*Their Origins, Effects, and an Integrated Solution*

Jamie DeCoster *University of Virginia*  
Erin A. Sparks *Purdue University*  
Jordan C. Sparks *University of Minnesota*  
Glenn G. Sparks *Purdue University*  
Cheri W. Sparks *Indiana First Steps, Lafayette, Indiana*

**American Psychologist**  
**Sept 2015;70:499-514.**

**BMJ 2009;339:b2049**

**Inappropriate referencing in research**

www

Has serious consequences, and the research community needs to act

# Biais d'opportunité

- Le chercheur examine de multiples analyses avant de choisir laquelle sera présentée dans l'article
  - Ceci apporte des opportunités pour publier, mais diminue la probabilité de répliquer la recherche
- Mesurer à de nombreux temps, et ne retenir que la mesure ayant un résultat approprié
- Examiner la même hypothèse dans des sous-groupes, quand la population totale n'a pas apporté le résultat attendu

# Biais d'opportunité

- Avoir de bonnes raisons pour éliminer des données aberrantes
- Contrôler ou refaire les expériences négatives, mais pas les expériences positives
- Augmenter progressivement des effectifs jusqu'à ce que le résultat convienne
- Critères composites dont le nombre de critères inclus change entre les méthodes et les résultats
- "Choisir" les tests statistiques (arrondir le P)

# Les biais de citations

BMJ

RESEARCH

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How citation distortions create unfounded authority:  
analysis of a citation network

Steven A Greenberg, associate professor of neurology

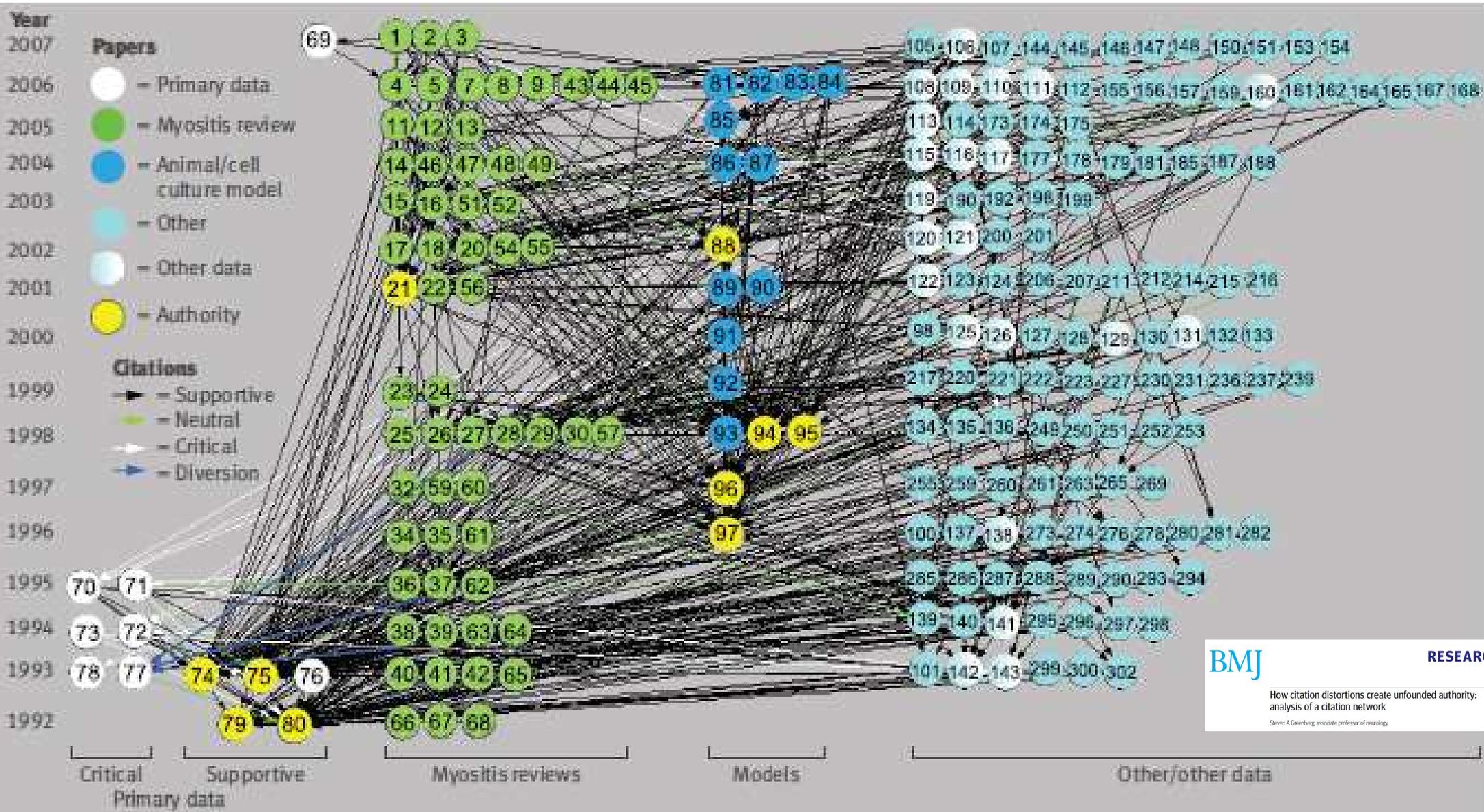
**BMJ 2009;339:b2680**

**BMJ 2009;339:b2049**

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**Inappropriate referencing in research**

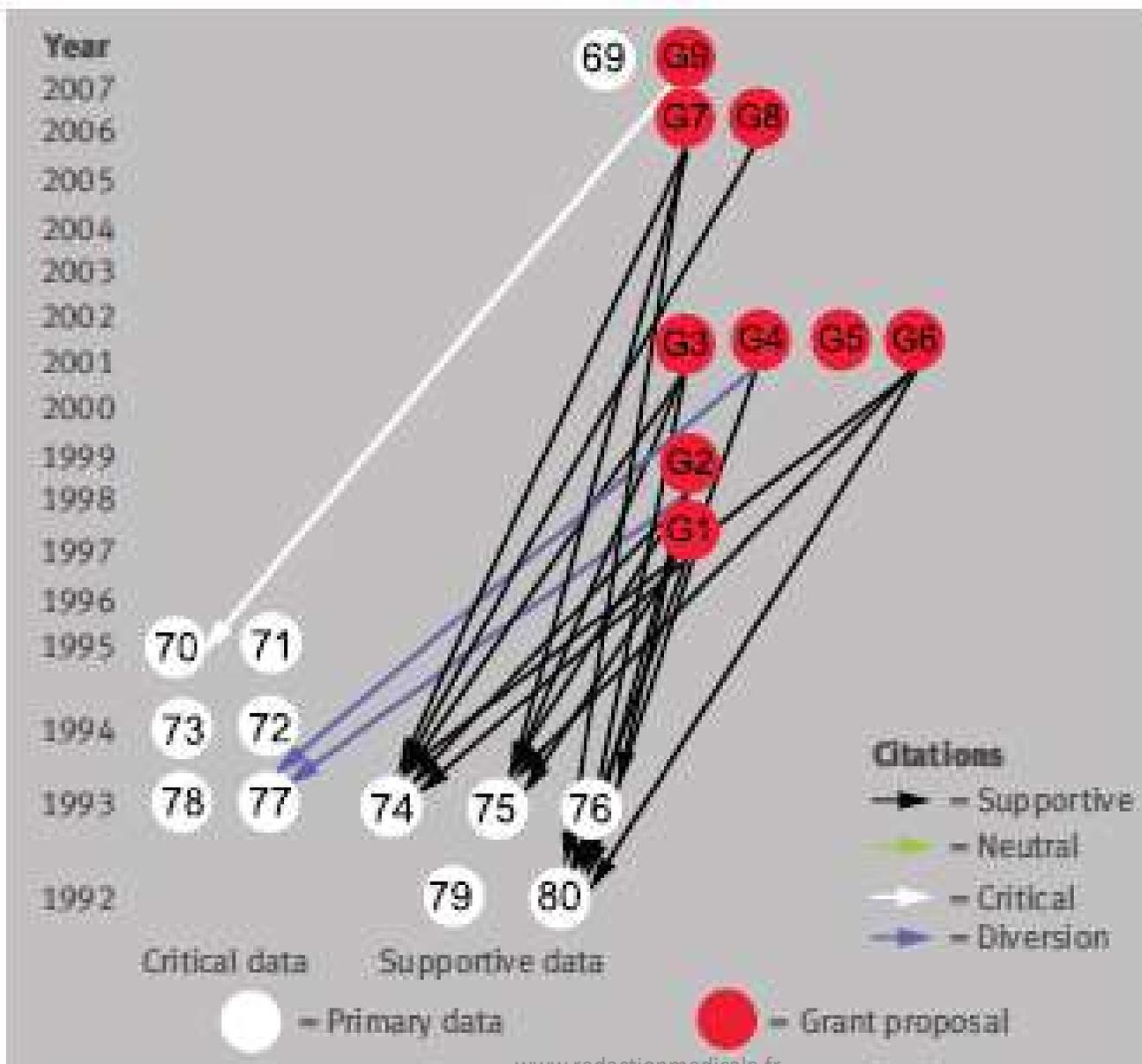
Has serious consequences, and the research community needs to act



**BMJ** RESEARCH

How citation distortions create unfounded authority: analysis of a citation network

Steven A Greenberg, associate professor of neurology



## Un cas de paternité d'un article

Vous êtes un jeune professeur récemment nommé dans une université française après avoir obtenu votre doctorat aux Etats-Unis. Vous êtes très enthousiaste au vu des résultats d'expériences récentes. Ils sont suffisamment importants pour mériter la publication dans une revue internationale prestigieuse.

Au fur et à mesure que vous complétez le manuscrit, votre directeur du département fait remarquer que l'acceptation de votre article aura pour conséquence des invitations pour vous et vos co-auteurs. Il permettra d'obtenir des financements pour le département. Il vous suggère d'ajouter votre superviseur de l'université américaine, qui n'a pas participé à la recherche, mais qui est internationalement connu, en tant que co-auteur de l'article ....

## Un cas de paternité d'un article

.... Cela améliorerait certainement la probabilité que l'article soit accepté.

Le directeur du département indique également qu'il s'attend à être co-auteur, même s'il n'a pas été impliqué dans le travail.

**Que répondez-vous au directeur du département ?**

**Quelles seraient les conséquences de suivre sa suggestion ?**

## Alerter les revues

The COMPare project takes a new approach. We are monitoring all trials published in the top five medical journals (NEJM, JAMA, The Lancet, Annals of Internal Medicine, BMJ). We are analysing each trial for outcome switching, by comparing the clinical trials registry and trial protocol with the trial report. For any trial where we find that outcomes have been switched, we are writing letters to the journal to correct the record. All of our results will also be posted here.

<http://compare-trials.org/>

## THE COMPARE PROJECT

CENTRE FOR EVIDENCE-BASED MEDICINE OUTCOMES MONITORING PROJECT:  
TRACKING SWITCHED OUTCOMES IN CLINICAL TRIALS

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)

[www.compare-trials.org](http://www.compare-trials.org)

Randomized trials  
Oct 2015 - Feb 2016

Annals of Internal Medicine

thebmj

JAMA The Journal of the  
American Medical Association

THE LANCET



The NEW ENGLAND  
JOURNAL of MEDICINE

67

Trials checked

?

Trials were  
perfect

?

Outcomes not  
reported

?

New outcomes  
silently added

?

Letters sent

?

Letters  
published

?

Letters  
unpublished  
after 4 weeks

?

Letters rejected  
by editor

[www.compare-trials.org](http://www.compare-trials.org)

Randomized trials  
Oct 2015 - Feb 2016

Annals of Internal Medicine

thebmj

JAMA The Journal of the  
American Medical Association

THE LANCET



The NEW ENGLAND  
JOURNAL of MEDICINE

67

Trials checked

9

Trials were  
perfect

354

Outcomes not  
reported

$354/58 = 6,1$

357

New outcomes  
silently added

$354/58 = 6,2$

58

Letters sent

18

Letters  
published

8

Letters  
unpublished  
after 4 weeks

32

Letters rejected  
by editor

## Lettres envoyées aux revues : exemple

There was one pre-specified primary outcome, which was reported incorrectly as a secondary outcome in the main paper. In addition, the paper reports 5 “primary outcomes” that were not pre-specified, without flagging them as such. There was also 1 pre-specified secondary outcome, which is not reported anywhere in the publication. In addition, the paper reports 9 new secondary outcomes, which were not pre-specified, without flagging them as such.

Annals of Internal Medicine has endorsed the CONSORT guidelines [3] on best practice in trial reporting. In order to reduce the risk of selective outcome reporting, CONSORT includes a commitment that all pre-specified primary and secondary outcomes should be reported; and that, where new outcomes are reported, it should be made clear that these were added at a later date, with an explanation of when and for what reason.

<https://docs.google.com/document/d/13rfaG2bfiOftob9XfnsT2SNycMGP1KonOqWslmfibRA/edit>

www.redactionmedicale.fr

# 'Oops, Wrong Cancer': How Contaminated Cell Lines Produce Bad Research

2010;127:  
1-8



**Check your cultures! A list of cross-contaminated or  
misidentified cell lines**

The Atlantic 23 avril 2012

<http://www.theatlantic.com/health/archive/2012/04/oops-wrong-cancer-how-contaminated-cell-lines-produce-bad-research/256246/>

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)

## Hundreds of researchers are using the wrong cells. That's a major problem.

with 5 comments

What if we told you that approximately 1 in 6 researchers working with human cells are using the wrong cell line? In other words, they believe they are studying the effects of a drug on breast cancer cells, for instance, but what they really have are cells from the bladder. That is the unfortunate reality in life science research today, affecting hundreds of labs. It's a major source of problematic papers which cannot be replicated, wasting scientists' time and funding.

We're pleased to present a guest post from Amanda Capes-Davis, chair of the International Cell Line Authentication Committee (ICLAC), a voluntary scientific committee created to improve awareness of misidentified cell lines. She also collects news about cell line and culture contamination. This is the first in a series of two posts from guest authors about how problematic cell lines are contaminating the scientific literature, and how we can clean it up.

In 2010, I worked alongside Ian Freshney of Glasgow University and other colleagues to publish a list of cross-contaminated or otherwise misidentified cell lines in the International Journal of Cancer. This database of false cell lines is now curated by the International Cell Line Authentication Committee (ICLAC).



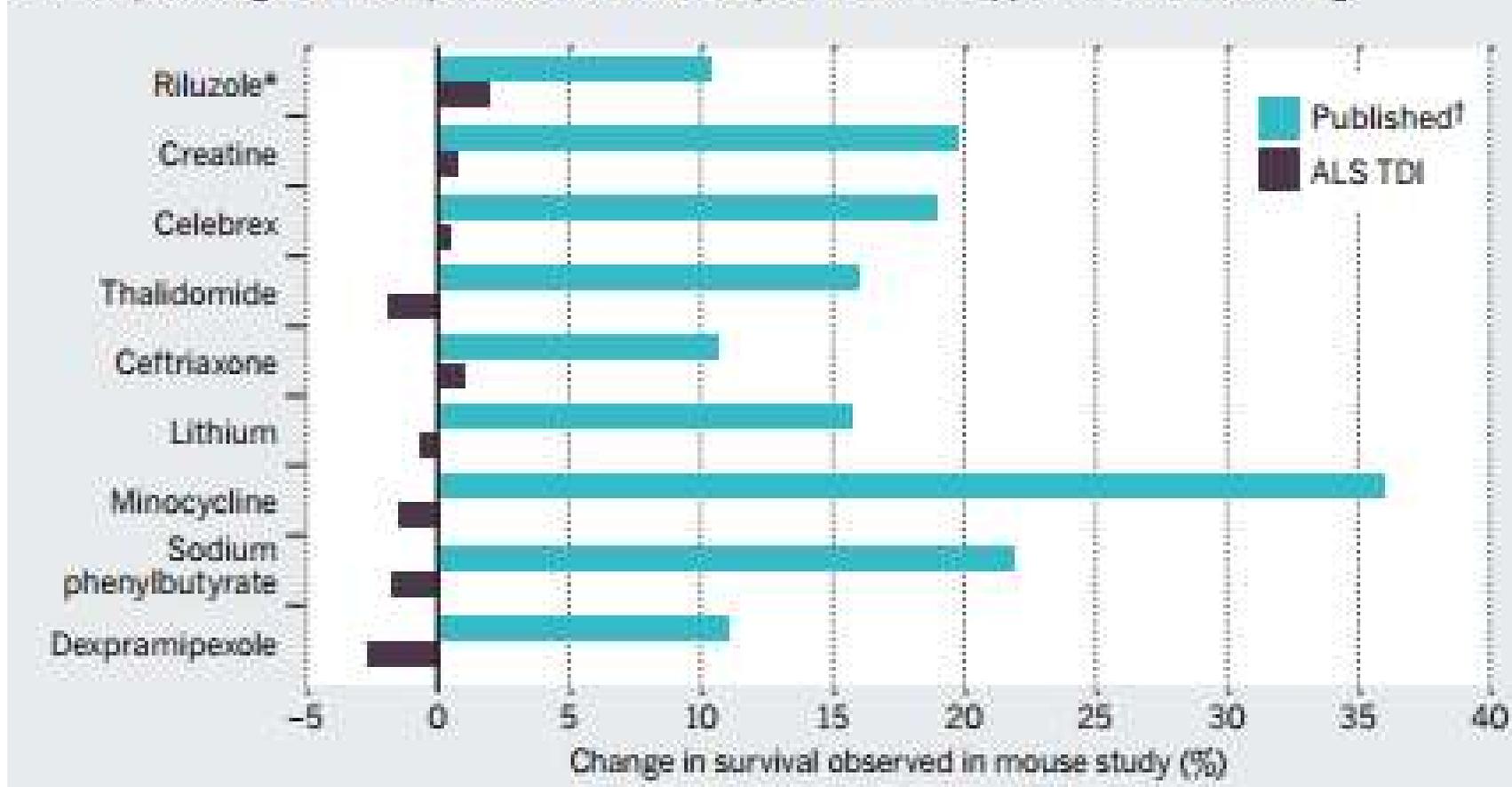
Amanda Capes-Davis

<http://retractionwatch.com/2015/12/08/hela-is-the-tip-of-the-contamination-iceberg-guest-post-from-cell-culture-scientist/>

www.redactionmedicale.fr

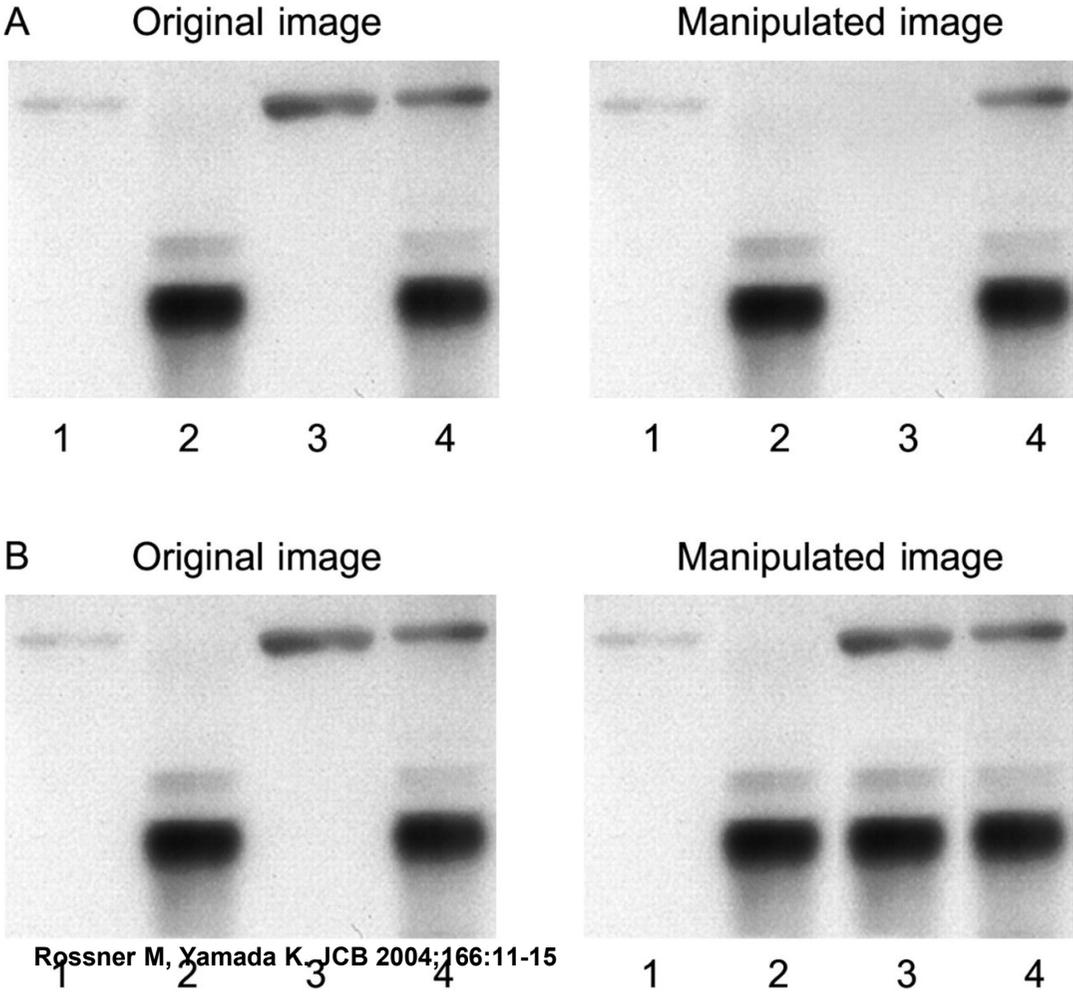
# Publications trompeuses

Results of rigorous animal tests by the Amyotrophic Lateral Sclerosis Therapy Development Institute (ALS TDI) are less promising than those published. All these compounds have disappointed in human testing.



Perrin S. Make mouse studies work. Nature 2014;507:423-425  
[www.reactionmedicale.fr](http://www.reactionmedicale.fr)

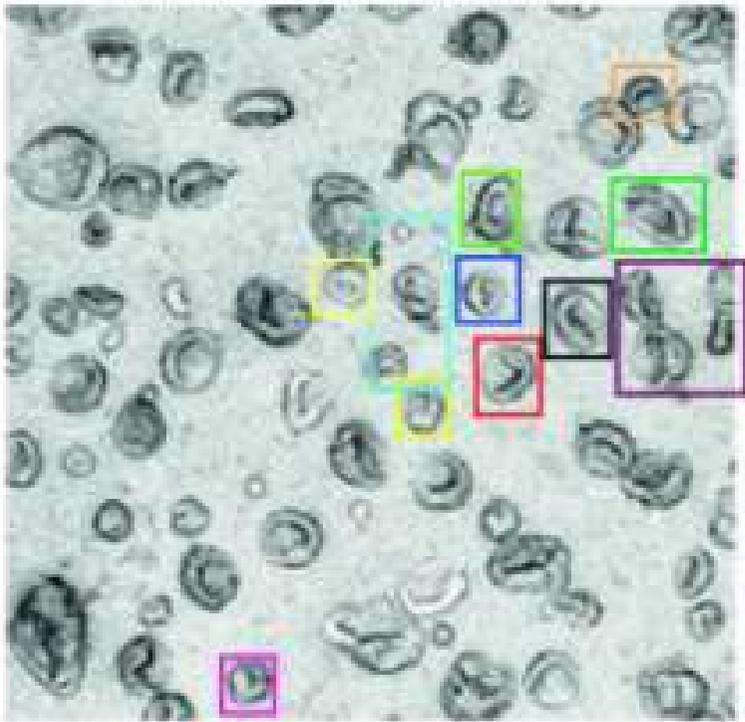
# Gross manipulation of blots



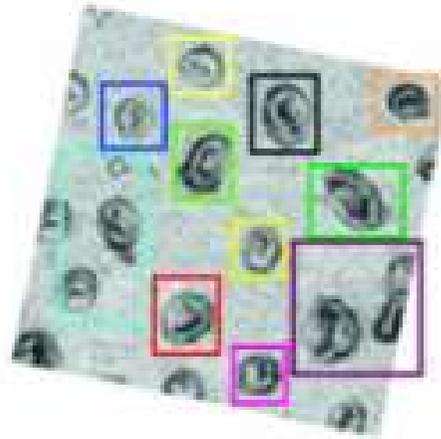
# Electronic microscopy

- PubPeer, September 2015
- Retracted by the editor in June 2016

Couzin J., Science, 2005



Li et al., Lung Cancer, 2014



Contents lists available at ScienceDirect

**Lung Cancer**

journal homepage: [www.elsevier.com/locate/lungcan](http://www.elsevier.com/locate/lungcan)

**β-Elemene against human lung cancer via up-regulation of P53 protein expression to promote the release of exosome**

Jianying Li<sup>a,b,1</sup>, JunYu<sup>c,1</sup>, An Liu<sup>a</sup>, Yili Wang<sup>b,4</sup>

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**ARTICLE INFO**

Article history:  
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**Keywords:**  
 β-Elemene  
 Lung cancer  
 P53

**Exosome:**  
 miR-2  
 miR-41

**ABSTRACT**

Background: β-Elemene, a novel antitumor agent derived from the traditional Chinese medicinal herb Zedanshi, has been shown to be effective against multiple variety of tumors. Recent studies have indicated that β-elemene can inhibit the growth of lung cancer cells; however, the exact mechanism of β-elemene's action in lung cancer cells is largely unknown. In the present study, the antitumor effect of β-elemene on human lung cancer cells and the mechanism involved has been investigated.

Methods: The inhibitory effects of β-elemene on cell growth were measured by Trypan Blue exclusion and MTT assay. Flow cytometric analysis was used to detect the cells' apoptotic rate. The expression of P53 mRNA and protein were measured by RT-PCR and Western blot analysis, respectively. Exosomes were isolated by differential ultracentrifugation and analyzed by electron microscopy and western blotting. P53 knockdown cells were established through transfection with P53 siRNA. To investigate the effect of β-elemene on the tumor growth, orthotopic nude mouse model was established by injecting the A549 cells into the back of mice.

Results: β-Elemene markedly inhibited growth and induced apoptosis in lung cancer cells. The levels of the apoptosis genes Bcl-2 and Bcl-xL in A549 cells decreased, while expression of P53 and production of exosomes increased after β-elemene treatment. Further siRNA studies suggested that the effect of β-elemene on P53-dependent cell growth was dependent on P53 expression. Exosomes derived from A549 cultured with β-elemene demonstrated positive exhibited decreased tumor cell proliferation. The in vivo study demonstrated that β-elemene inhibited tumor growth, and up-regulated the expression of P53 and the release of exosomes. Conclusion: Our results demonstrated β-elemene acts on lung cancer cells in a P53 dependent manner. Exosomes are involved in the regulation of cell proliferation.

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**1. Introduction**

Lung cancer continues to be the most common cause of cancer-related mortality in men worldwide, killing more people than breast, colorectal, stomach and colon cancers combined [1]. The trend in five-year relative survival rates of lung cancer patients is only 15%. Although some therapeutic advances have been achieved, such as chemotherapy that provides useful pallia-

enhance the antitumor effects of chemotherapeutic agents are required [3]. Numerous natural cancer chemopreventive agents have already been isolated and are being used for the treatment of cancers, such as taxol and bufalin [4,5].

β-Elemene (1-methyl-1-vinyl-2,4-disopropenyl-cyclohexane), an effective antitumor medicine, is isolated from the traditional Chinese medicinal herb Zedanshi and contains α-, β- and δ-elemene. β-Elemene, the major active antitumor component,

RETRACTED

Lung Cancer, 2014 Nov;86(2):144-50. doi: 10.1016/j.lungcan.2014.08.015. Epub 2014 Aug 29.

5 comments on PubPeer

**β-Elemene against human lung cancer via up-regulation of P53 protein expression to promote the release of exosome.**

Li J<sup>1</sup>, JunYu<sup>2</sup>, Liu A<sup>3</sup>, Wang Y<sup>4</sup>.

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)

[http://www.lungcancerjournal.info/article/S0169-5002\(14\)00360-2/abstract](http://www.lungcancerjournal.info/article/S0169-5002(14)00360-2/abstract)

# Au moins 50 % des articles sont embellis !

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Research



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## The natural selection of bad science

Paul E. Smaldino<sup>1</sup> and Richard McElreath<sup>2</sup>

<sup>1</sup>Cognitive and Information Sciences, University of California, Merced, CA 95343, USA

<sup>2</sup>Department of Human Behavior, Ecology, and Culture, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

*R. Soc. open sci.* 2016; 3: 160384.

*Peut-on croire les publications ?*  
**Biais et embellissements  
polluent la science**

*Hervé Maisonneuve*

Science et pseudo-sciences 2016; 318:

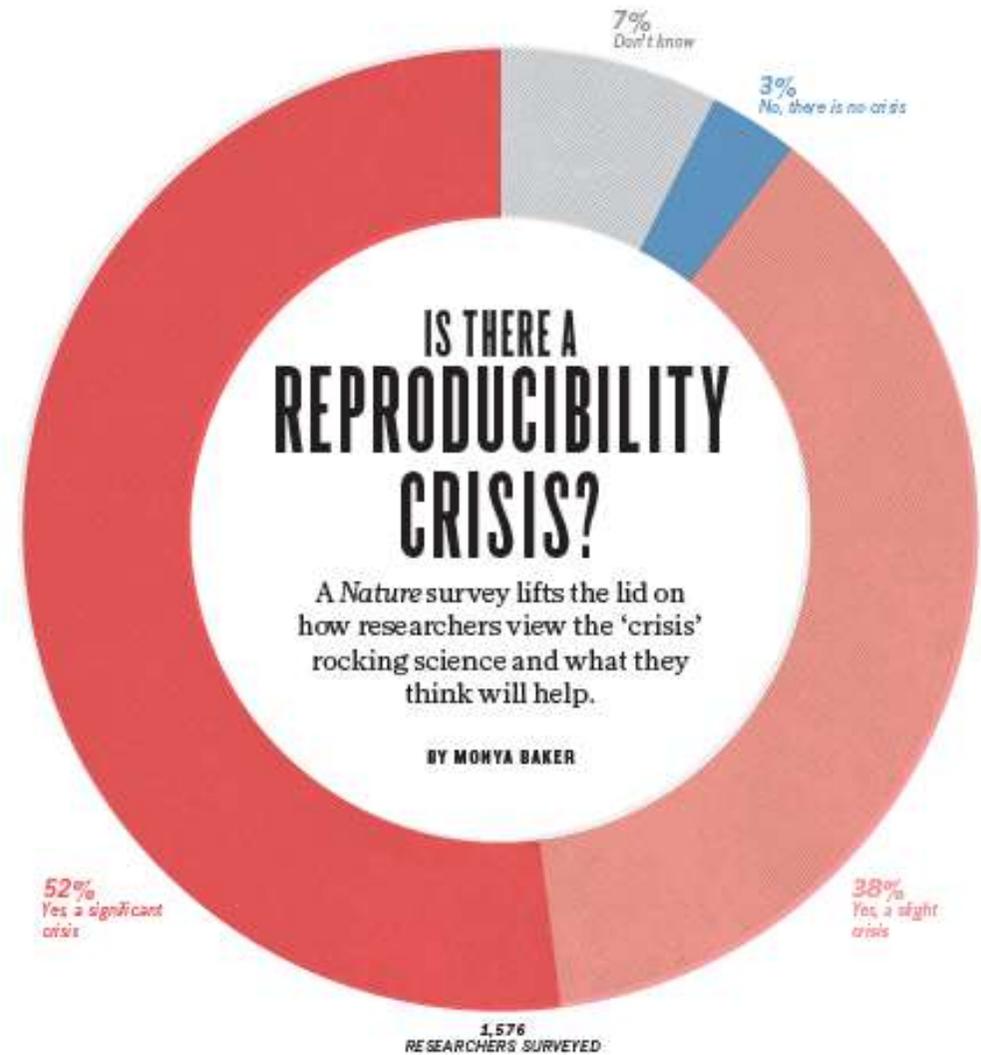
# Nature, 20 May 2016

## Reproducibility

It usually means that another scientist using the same methods gets similar results and can draw the same conclusions

## Reality check on reproducibility

A survey of Nature readers revealed a high level of concern about the problem of irreproducible results. Researchers, funders and journals need to work together to make research more reliable.



1576 answers

# Quelle est la qualité de la littérature scientifique ?

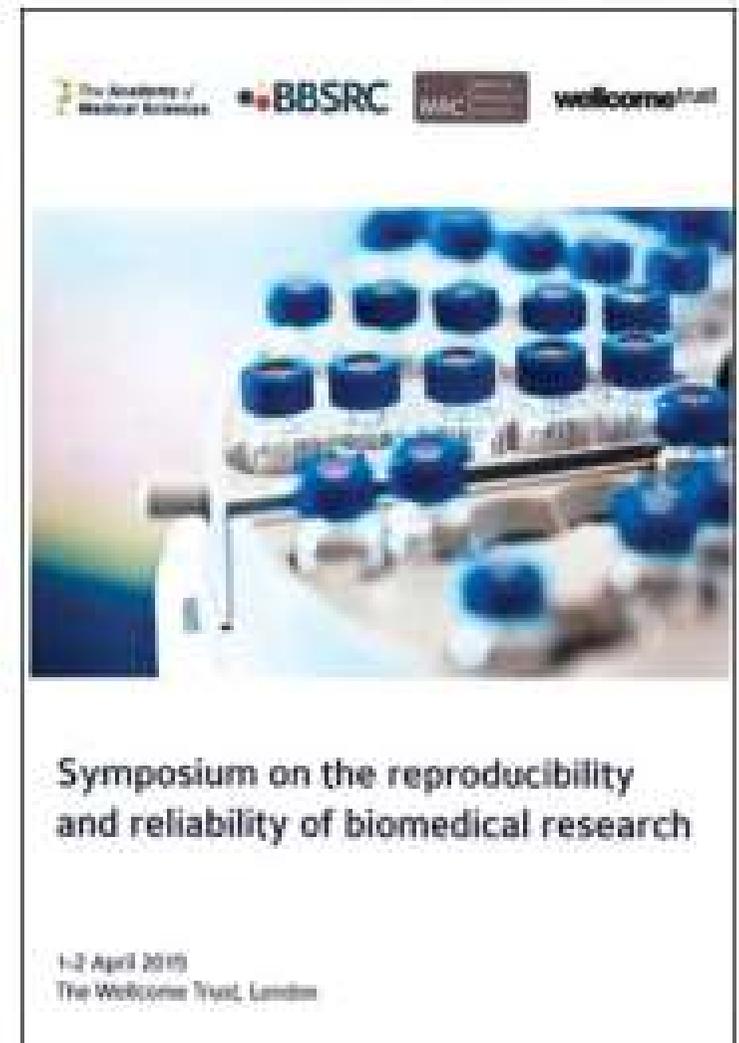
**« A lot of what is published is incorrect »**

Richard Horton, Lancet editor

11 April 2015, vol 385, n° 9976, p 1380

**Remplaçons  $p < 0,05$  par  $p < 0,001$  !**

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)



# The Lancet, 11 avril 2015

## R Horton, Rédacteur en chef

*La mise en accusation de la science est simple: une grande partie de la littérature scientifique, peut-être la moitié, peut être tout simplement fausse. Gangrénée par des études avec de petits échantillons, des effets minuscules, des analyses exploratoires invalides, et des conflits d'intérêts évidents, tout cela avec une obsession de poursuivre les tendances à la mode d'importance douteuse, la science a pris un virage vers l'obscurantisme. Comme l'a dit un participant, «des méthodes nulles donnent des résultats". ..... L'endémicité apparente du mauvais comportement en recherche est alarmante. Dans leur quête pour raconter une histoire convaincante, les scientifiques sculptent trop souvent leurs données en fonction de leur vision préférée du monde. Ou ils écrivent des hypothèses pour répondre à leurs données.*

# The Lancet, 11 avril 2015

## R Horton, Rédacteur en chef

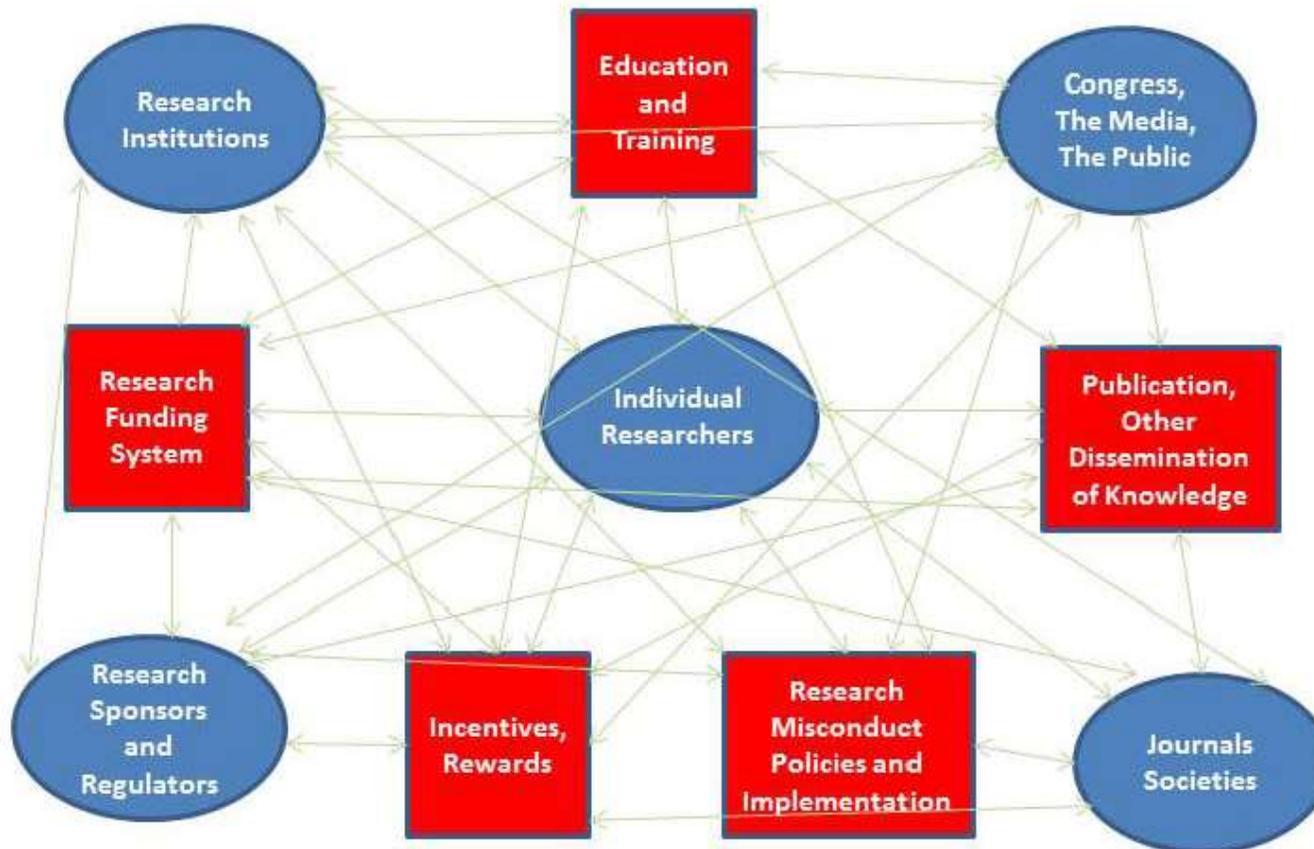
*Les rédacteurs de revues méritent leur juste part de critique aussi. Nous aidons et encourageons les pires comportements. Notre acquiescement aux facteurs d'impact engendre une concurrence malsaine pour gagner une place dans un petit nombre de revues. Notre amour de «l'innovation» pollue la littérature avec beaucoup de contes de fée 'statistiques'. Les revues ne sont pas les seuls mécréants. Les universités sont dans une lutte perpétuelle pour l'argent et le talent, paramètres qui favorisent des évaluations réductrices, comme la publication dans des revues avec un facteur d'impact. Les procédures nationales d'évaluation, telles que le 'Research Excellence Framework', incitent les mauvaises pratiques. Et les chercheurs eux-mêmes, y compris leurs plus hauts dirigeants, font peu pour changer une culture de recherche qui occasionnellement frôle les mauvaises conduites.*

Le constat : quelle est la qualité des articles ?

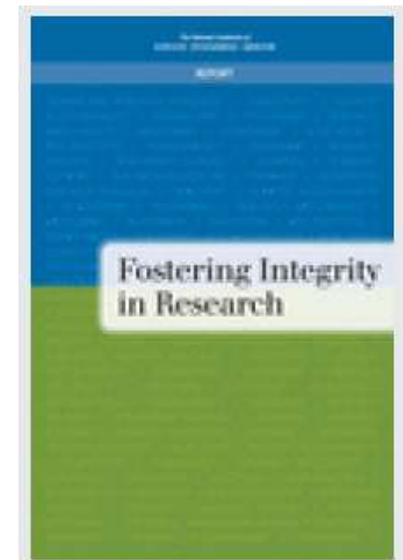
**Comment expliquer la situation ?**

Que suggérer pour améliorer ?

# L'entreprise recherche



Collaboration  
Mondialisation  
Commercialisation de  
l'université  
Compétition  
Décideurs/Public  
Technologies  
Science ouverte / Prédicateurs  
Malveillance



NAP 2017

## Un cas de peer-review

Vous êtes un étudiant et vous terminez votre thèse de doctorat en sciences. Vous êtes invité à relire un manuscrit pour un journal pour la première fois. Le système d'évaluation par les pairs assure la qualité des revues et vous êtes excité de faire partie de celui-ci. Vous lisez le résumé et croyez que votre expertise vous permet d'effectuer une analyse approfondie : vous acceptez l'invitation pour faire cette évaluation.

En lisant le manuscrit, vous êtes en mesure de déduire que le premier auteur est un ami personnel proche avec qui vous avez travaillé dans le passé. Il devrait avoir une promotion majeure, en étant nommé PU-PH.

## Un cas de peer-review

Il pourra alors vous aider dans votre carrière. Vous remarquez que le manuscrit contient des lacunes importantes dans l'analyse de données, et la question de recherche n'est pas claire. Vous pensez qu'il devrait être rejeté, au pire substantiellement révisé. Vous savez que, dans ce petit monde, votre collègue saura peut-être que vous avez reviewé son manuscrit... et l'avez rejeté !

**Que faites-vous ?**

**Est-ce que vous déclarez un conflit d'intérêt ?**

**Quelles conséquences si vous ne déclarez pas le conflit d'intérêt ?**

# L'effet 'Chrysalide'

**Pour métamorphoser vos piteux résultats en beaux articles, vous avez deux pratiques :**

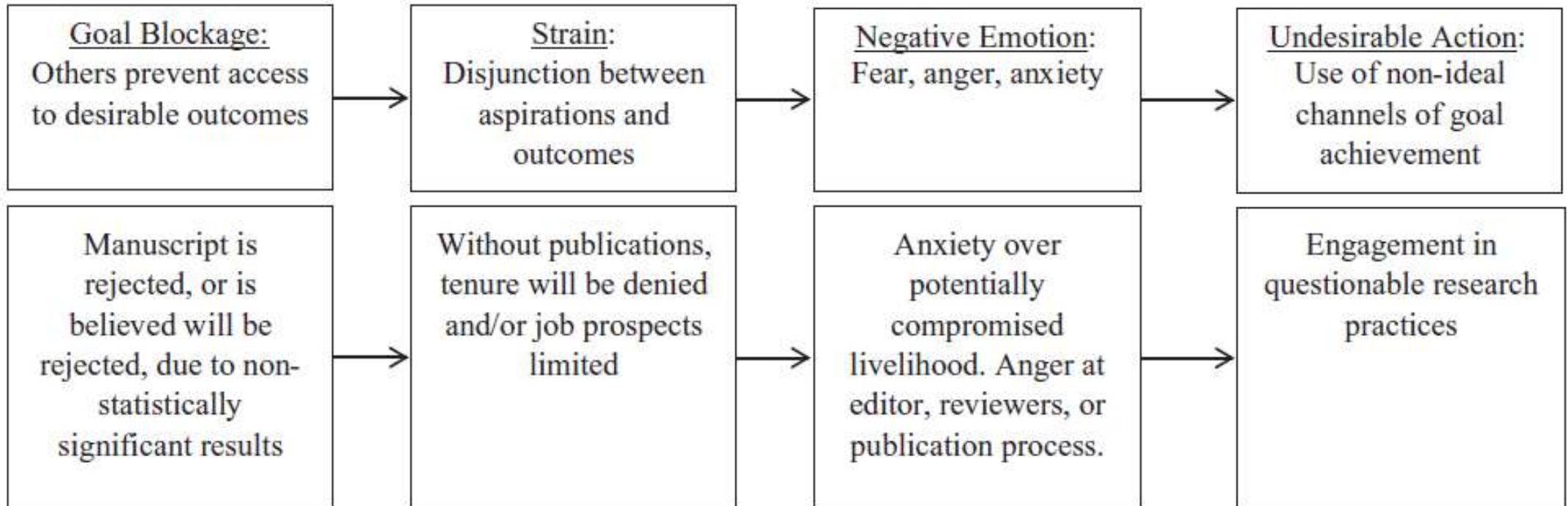
- 1. Proposer des hypothèses *a posteriori* pour qu'elles correspondent aux données obtenues,**
- 2. Torturer les données pour qu'elles répondent aux hypothèses**

The Chrysalis Effect: How Ugly Initial Results  
Metamorphosize Into Beautiful Articles

Journal of Management 2014 DOI: 10.1177/0149206314527133

# Dérive du chercheur honnête

## General Strain Theory Applied to Questionable Research Practices



# Missions des revues scientifiques ?

## Quatre missions historiques

- **Enregistrement** : prendre date et attribution de la paternité d'une oeuvre
- **Communication** des résultats des recherches ; information et formation
- **Certification** et contrôle qualité par le peer review
- **Archivage** de la science, en particulier pour citation ultérieure

# Missions des revues scientifiques ?

## Quatre missions historiques

- Enregistrement ; Communication ; Contrôle qualité ; Archivage

## Deux missions ajoutées depuis les années 1980s :

- Promotion des universitaires (facteur d'impact)
- Allocations des ressources

**Remise en cause par l'électronique** : l'article devient le point d'entrée des chercheurs ; les réseaux sociaux changent les revues

# Intérêts des acteurs des publications

- L'auteur : prêt à accepter toutes les remarques pour publier... voire à payer pour aller plus vite
- Le rédacteur en chef : un poste prestigieux, avec un pouvoir de '*régulation*' dans la spécialité
- Le relecteur : travailleur de l'ombre, observateur bénévole, avec un pouvoir de nuisance
- Le propriétaire de la revue doit assurer la pérennité (économique surtout)
- Le lecteur n'a aucun pouvoir : il ne paye pas (ce sont les institutions) ; s'il ne lit pas, les revues continuent d'exister

# Cherchez l'erreur !

En 25 ans environ

**Postes de chercheurs académiques USA**  
211 000 (1991) à 309 000 (2013)

**PhD formés aux USA**  
19 000 (1988) à 33 000 (2013)

**Articles publiés dans le monde**  
485 000 (1989) à 2 200 000 (2013)

**Augmentation**

**30 %**

**95 %**

**350 %**



National Academy of  
Science, USA, 2017

**Cnrs, Biologie de l'évolution**

**Premier job :**

**2005 : 12,5 publications**

**2013 : 22 publications**

Scientometrics 2015;103:333-6.

## Méconnaissance méthodologique

- ▶ Méthodes « faibles »
- ▶ Méthodes inappropriées
- ▶ Échantillon trop faible
- ▶ Erreurs statistiques
- ▶ Pas de recherche documentaire avant le travail
- ▶ Non-respect des réglementations

## Pratiques discutables en recherche

- ▶ « Torture » ou « massage » des données
- ▶ Changement du critère de jugement
- ▶ Choix sélectif/omission de données
- ▶ Références erronées
- ▶ Changements de tests statistiques  
*P-hacking* ou *P-HARKing*\*
- ▶ Manipulations d'images
- ▶ Paternité des articles : conflit d'auteurs !
- ▶ Études animales trompeuses
- ▶ Non-publication de recherches financées
- ▶ Résumés, communiqués de presse embellis...

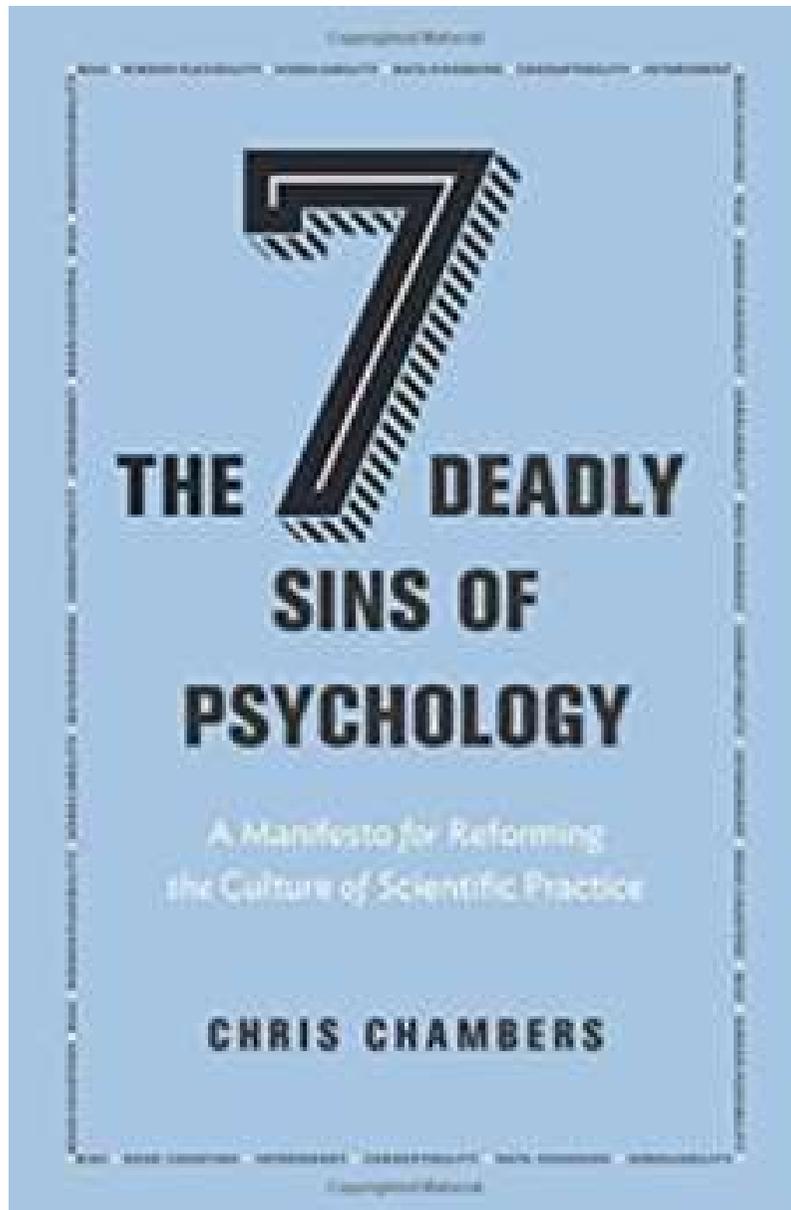
## Fraude

- Fabrication**
- Falsification**
- Plagiat**

**Non intentionnel**

**Intentionnel**

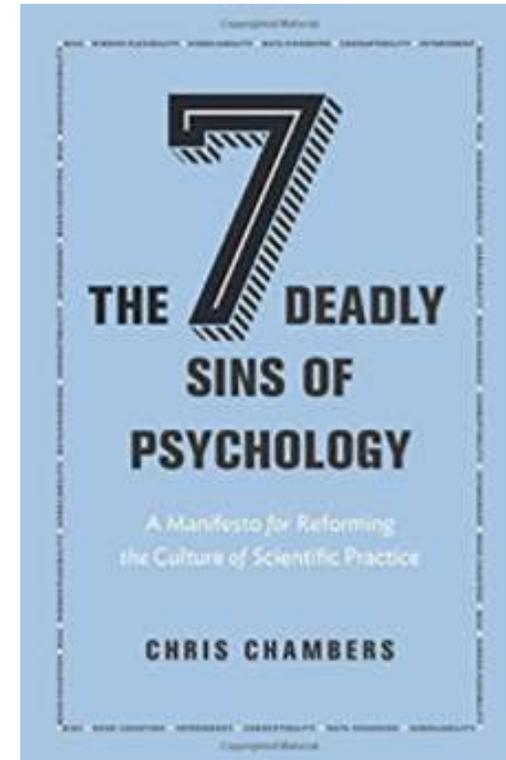
\*Hypothesizing After Results are Known



1. The sin of bias
2. The sin of hidden flexibility
3. The sin of unreliability
4. The sin of data hoarding
5. The sin of corruptibility
6. The sin of internment
7. The sin of bean counting
  
8. Redemption

# Les 7 péchés mortels

1. Les biais... *la convenance sociale*
2. La flexibilité cachée : *p-harking et p-HACKing*
3. Manque de fiabilité
4. Accumulation de données
5. Corruption
6. Internement : *refus de l'ouverture des données, des publications, ..*
7. Comptage de haricots : facteur d'impact, astrologie, auteurs,...
8. **Le rachat !.... *TOP (Transparency Openess Promotion) guidelines et Registered Reports***



Le constat : quelle est la qualité des articles ?

Comment expliquer la situation ?

**Que suggérer pour améliorer ?**

# **Intégrité scientifique**

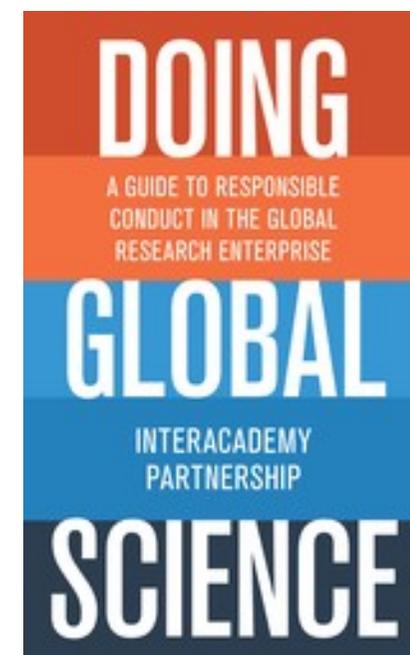
# **Conduite responsable de la recherche**

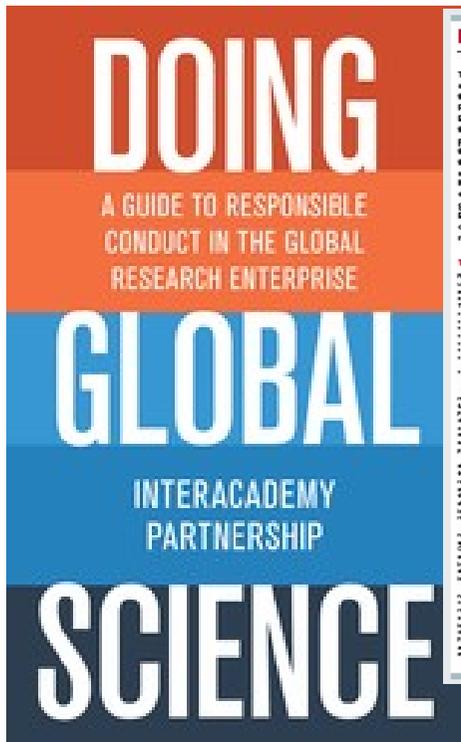
# Rapport Corvol, Juin 2016



**Bilan et propositions de mise en œuvre de la charte nationale d'intégrité scientifique**

Remise du rapport à Thierry Mandon, secrétaire d'Etat chargé de l'Enseignement supérieur et de la Recherche





### European Code of Conduct for Research Integrity

This code – developed through a series of workshops involving the ERC (European Science Foundation) and ALLEA (All European Academies) – addresses the proper conduct and privileged practices of systematic research in the natural and social sciences and the humanities. It is a code for self-regulation, not a body of law. It is not intended to replace existing national or academic guidelines, but to represent Europe-wide agreement on a set of principles and policies for the research community.

#### The Code

Researchers and their research organisations, universities and funding organisations must observe an ethical principle of integrity in scientific and scholarly research. This principle includes:

- honesty in communication
- reliability in publishing research
- integrity
- impartiality and independence
- openness and accessibility
- care of data
- fairness in providing references and giving credit
- respect for the interests and reputation of the field.

Scientists, teachers and all others who employ researchers, as well as agencies and organisations funding their activities, have a duty to ensure a principle of ethical research integrity. This duty also applies to the promotion, training and monitoring of researchers and to the development of standards and procedures for the evaluation of research proposals and the award of grants. It also applies to the award of prizes, honours and other awards.

Researchers, teachers and all others who employ researchers, as well as agencies and organisations funding their activities, have a duty to ensure a principle of ethical research integrity. This duty also applies to the promotion, training and monitoring of researchers and to the development of standards and procedures for the evaluation of research proposals and the award of grants. It also applies to the award of prizes, honours and other awards.

Partners (both individual and institutional) in international research should agree to participate in research in a way that respects the principles of the European Code of Conduct for Research Integrity. The code is intended to be a guide for researchers and research organisations.

**The principles of research integrity**  
There are five key principles of research integrity: honesty, reliability, impartiality and independence, openness and accessibility, and care of data.

**Integrity**  
Researchers should be honest and reliable in their communication. They should be impartial and independent in their research. They should be open and accessible in their research. They should be careful of their data.

**Integrity**  
Researchers should be honest and reliable in their communication. They should be impartial and independent in their research. They should be open and accessible in their research. They should be careful of their data.

**Good research practice**  
Researchers should follow good research practice. This includes honesty, reliability, impartiality and independence, openness and accessibility, and care of data.

### Singapore Statement on Research Integrity

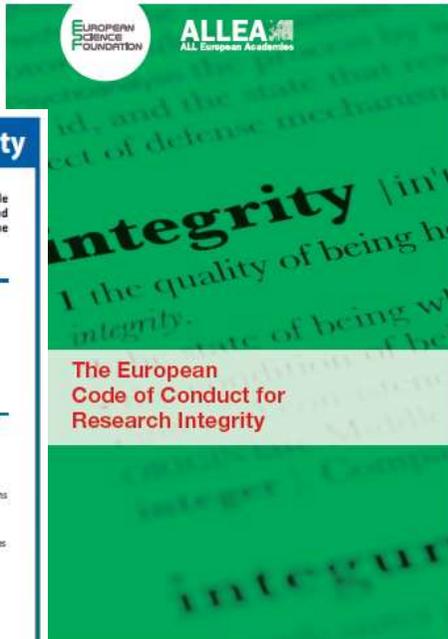
Preamble. The value and benefits of research are vitally dependent on the integrity of research. While there can be and are national and disciplinary differences in the way research is organized and conducted, there are also principles and professional responsibilities that are fundamental to the integrity of research wherever it is undertaken.

#### PRINCIPLES

**Honesty** in all aspects of research  
**Accountability** in the conduct of research  
**Professional courtesy and fairness** in working with others  
**Good stewardship** of research on behalf of others

#### RESPONSIBILITIES

- Integrity:** Researchers should take responsibility for the trustworthiness of their research.
- Adherence to Regulations:** Researchers should be aware of and adhere to regulations and policies related to research.
- Research Methods:** Researchers should employ appropriate research methods, base conclusions on critical analysis of the evidence and report findings and interpretations fully and objectively.
- Research Records:** Researchers should keep clear, accurate records of all research in ways that will allow verification and replication of their work by others.
- Research Findings:** Researchers should share data and findings openly and promptly, as soon as they have had an opportunity to establish priority and ownership claims.
- Authorship:** Researchers should take responsibility for their contributions to all publications, funding applications, reports and other representations of their research. Lists of authors should include all those and only those who meet applicable authorship criteria.
- Publication Acknowledgement:** Researchers should acknowledge in publications the names and roles of those who made significant contributions to the research, including writers, funders, sponsors, and others, but do not meet authorship criteria.
- Peer Review:** Researchers should provide fair, prompt and rigorous evaluations and respect confidentiality when reviewing others' work.
- Conflict of Interest:** Researchers should disclose financial and other conflicts of interest that could compromise the trustworthiness of their work in research proposals, publications and public communications as well as in all review activities.
- Public Communication:** Researchers should limit professional comments to their recognized expertise when engaged in public discussions about the application and importance of research findings and clearly distinguish professional comments from opinions based on personal views.
- Reporting Irresponsible Research Practices:** Researchers should report to the appropriate authorities any suspected research misconduct, including fabrication, falsification or plagiarism, and other irresponsible research practices that undermine the trustworthiness of research, such as carelessness, improperly listing authors, failing to report conflicting data, or the use of misleading analytical methods.
- Responding to Irresponsible Research Practices:** Research institutions, as well as journals, professional organizations and agencies that have commitments to research, should have procedures for responding to allegations of misconduct and other irresponsible research practices and for protecting those who report such behavior in good faith. When misconduct or other irresponsible research practice is confirmed, appropriate actions should be taken promptly, including correcting the research record.
- Research Environments:** Research institutions should create and sustain environments that encourage integrity through education, clear policies, and reasonable standards for advancement, while fostering work environments that support research integrity.
- Societal Considerations:** Researchers and research institutions should recognize that they have an ethical obligation to weigh societal benefits against risks inherent in their work.



# Singapour : principes

**Honnêteté dans tous les aspects de la  
recherche**

**Conduite responsable de la recherche**

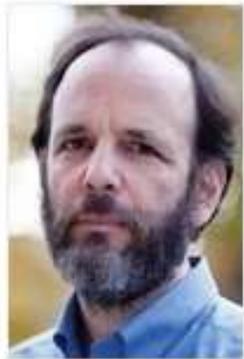
**Courtoisie et loyauté dans les relations de  
travail**

**Bonne gestion de la recherche pour le  
compte d'un tiers**

[http://www.singaporestatement.org/Translations/SS\\_French.pdf](http://www.singaporestatement.org/Translations/SS_French.pdf)

# L'intégrité en France

- **C'est nouveau : 2015/2016**
- **Il faut définir la liste des méconduites en recherche**
- **Des référents intégrité en cours de nomination dans les Universités**
- **Il faudra les former et leur donner une mission**
- **OFIS : Office Français de l'Intégrité Scientifique**
  
- **Y'a qu'à former les jeunes : un leurre pour les vieux !**
- **Autres pays ? World Conference on Research Integrity**



## The pressure to publish pushes down quality

Scientists must publish less, says **Daniel Sarewitz**, or good research will be swamped by the ever-increasing volume of poor work.

11 May 2016

<http://www.nature.com/news/the-pressure-to-publish-pushes-down-quality-1.19887>

Download the  
Declaration (PDF)

Download the DORA  
Logo (PDF)

Download the DORA  
Poster (PDF)

## San Francisco Declaration on Research Assessment

Putting science into the assessment of research

<http://www.ascb.org/dora/>

Slow science!

### For Organizations That Supply Metrics

- Be transparent
- Provide access to data
- Discourage data manipulation
- Provide different metrics for primary literature and reviews

### For Publishers

- Cease to promote journals by Impact Factor, provide an array of metrics
- Focus on article-level metrics
- Identify different author contributions
- Open the bibliographic citation data
- Encourage primary literature citations

### For Research Institutions

- When hiring and promoting, state that scientific content of a paper, not the JIF of the journal where it was published, is what matters
- Consider value from all outputs and outcomes generated by research

### For Funding Agencies

- State that scientific content of a paper, not the JIF of the journal where it was published, is what matters
- Consider value from all outputs and outcomes generated by research

### For Researchers

- Focus on content
- Cite primary literature
- Use a range of metrics to show the impact of your work
- Change the culture!

# Avez-vous la solution ?

- Changer la culture de l'évaluation et de l'allocation des ressources
- Le système 'gold' (publication à compte d'auteurs) pose problème
- Faut-il un système de 'registered reports'\* (plus de 100 revues)
- Est-ce que les institutions peuvent (et veulent) reprendre la main ?
- Les archives ouvertes reprendraient-elles les missions des revues :  
*Enregistrement ; Communication ; Contrôle qualité ; Archivage ?*



\*Registered reports : peer review before results are known

The Center for Open Science was founded in 2013 in Charlottesville, Virginia. We began with one infrastructure project, the [Open Science Framework](#), one research project, [Reproducibility Project: Psychology](#), and a mission: to increase openness, integrity, and reproducibility of scientific research. That mission guides all of our work. Today, we are a team of about 50 people supporting a much larger collection of [communities](#) that are producing tools and services to align scientific practices with scientific values.



CENTER FOR OPEN SCIENCE

<http://centerforopenscience.org/>

WE FOSTER THE **OPENNESS, INTEGRITY, AND REPRODUCIBILITY** OF  
SCIENTIFIC RESEARCH

COS is a non-profit technology company providing free and open services to increase inclusivity and transparency of research. COS supports shifting incentives and practices to align more closely with scientific values.

# Je vous remercie

[www.redactionmedicale.fr](http://www.redactionmedicale.fr)

**Les chercheurs qui sont les plus attentifs pour diminuer ou éliminer les biais d'opportunité et de citations peuvent devenir moins compétitifs sur le plan académique**

**Ceci peut les démoraliser et les conduire à adopter des pratiques préjudiciables en recherche**

Merci

**[www.redactionmedicale.fr](http://www.redactionmedicale.fr)**