

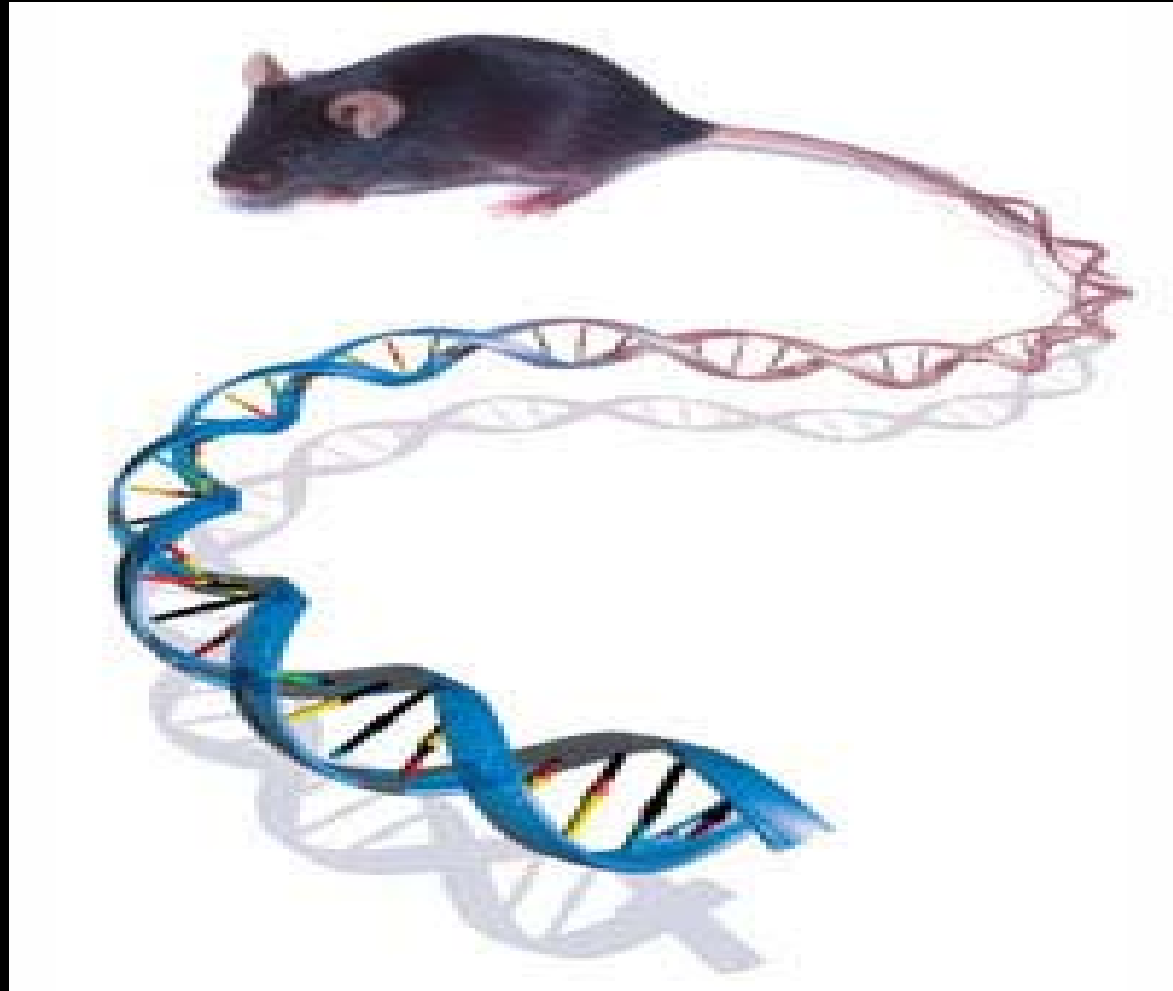
Scientific publishing: Playing the game

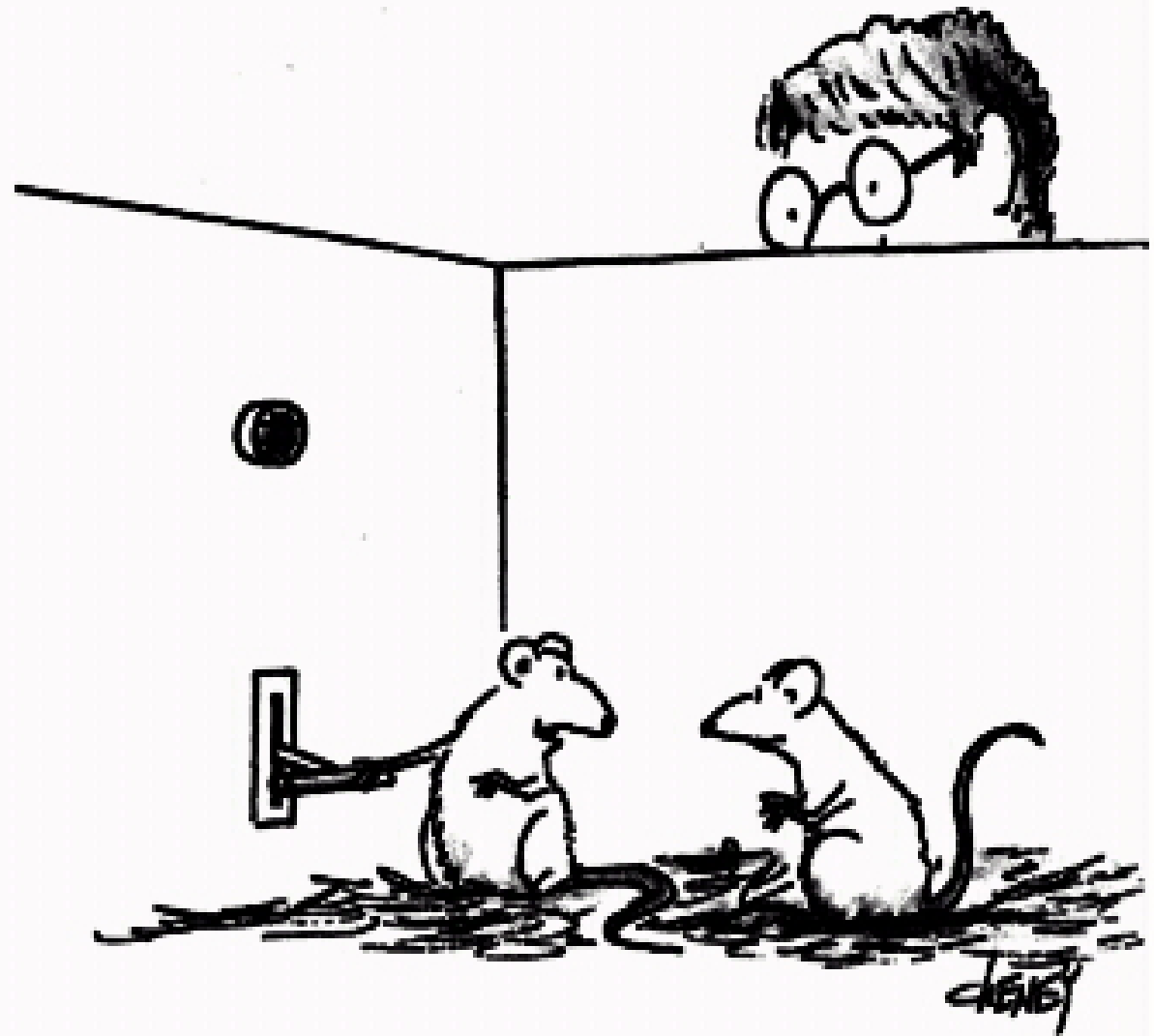


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Biomedical Research





It's a rather interesting phenomenon. Every time I press this lever, that post-graduate student breathes a sigh of relief.

Biomedical Research support (U.S.A.)

- ✓ Federal government
- ✓ State and local governments
- ✓ Private not-for-profit entities/foundations
- ✓ Industry





✓ From 1994 to 2003 total funding for biomedical research in the U.S. doubled to \$94.3 billion

• Industry provides 57% and the NIH 28%

Industry funding from pharmaceutical, biotechnology, and medical device firms increased 102% (from \$26.8 billion in 1994 to \$54.1 billion in 2003)

✓ 75% of all funding for clinical trials in the US comes from corporate sponsors





Biomedical Research: Big Business

U.S.A. is not alone in that:

✓ A panel of medical experts commissioned by the Canadian Association of University Teachers warned that outside pressures were putting the integrity and independence of as many as 20,000 clinical faculty and researchers in that country at risk

✓ "Universities are being encouraged to make commercial use of their discoveries.

This is blurring the once clearly-strict dividing lines between universities and commerce."

(Imogen Evans, research strategy manager for clinical trials at the Medical Research Council in London, U.K.)

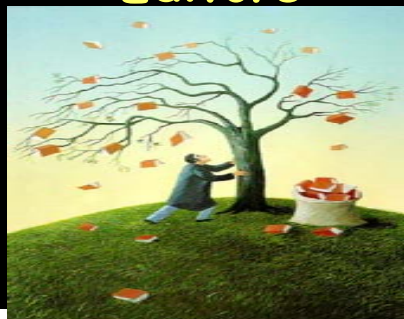
Biomedical Research and the IF

- ✓ Journals with an IF > 0: 6003
- ✓ Journals with IF > 10 : 1,5%
- ✓ First 25 Journals $19,5 < \text{IF} < 49,7$
- ✓ Of these first 25 only 2 are not BIOMEDICAL
- ✓ 75% of all journals with IF ARE BIOMEDICAL



The players

Editors




Reviewers



Authors





$$IF = \frac{A}{B}$$

A : total number of citations to all types of articles (including editorials, letters, abstracts from meetings)

B: only the number of articles, notes and reviews published

The ISI is doing half of the job for you


$$IF = \frac{A}{B}$$

- ✓ Publish less articles
- ✓ Publish more reviews
- ✓ Publish long articles
- ✓ Publish "hot articles" (*)
- ✓ Publish a large correspondence section or controversial editorials (* *)
- ✓ Publish articles from Nobel winners (30-40x citations)

* The paper on mouse genome published in Nature in 2002 received alone 525 citations in the year 2004

* * When Lancet (1997) divided its *Letters* section into *Correspondence* and *Research Letters* (peer-reviewed/ - citable for the denominator) its IF dropped from 17 to 12 (Scully and Lodge 2005)

Journals IFs are determined by technicalities unrelated to the scientific quality of their articles (Seglen P O, BMJ 1997)



- ✓ Increase self citations
- ✓ Increase citations from editorial board members
- ✓ Publish controversial or poor papers
- ✓ Use English as the publication language (*)
- ✓ Translated the journal into 1 or 2 other languages
(citations to translated versions are listed twice)

(Seglen 1997)

* English-language journals those especially from the US are favoured in the SCI database and tend to enjoy higher IFs (Scully and Lodge 2005)



✓ Move to the USA!!! (*)

✓ Turn to a modern-rapidly changing field

✓ Turn to a large scientific field (* *)

✓ Turn to scientific since clinical journals tend to have lower IF (Scully and Lodge 2005)

* American scientists, who seem particularly prone to citing each other (Moller 1990, Andersen 1996), dominate the databases to such an extent as to raise both the citation rate and the mean journal impact of American science 30% above the world average (Braun et al. 1996)

* * Journal IF depend on the research field: high IFs are likely in journals covering large areas of basic research with a rapidly expanding but short lived literature that use many reference per article (Seglen P O, BMJ 1997, Moed et al. 1985)

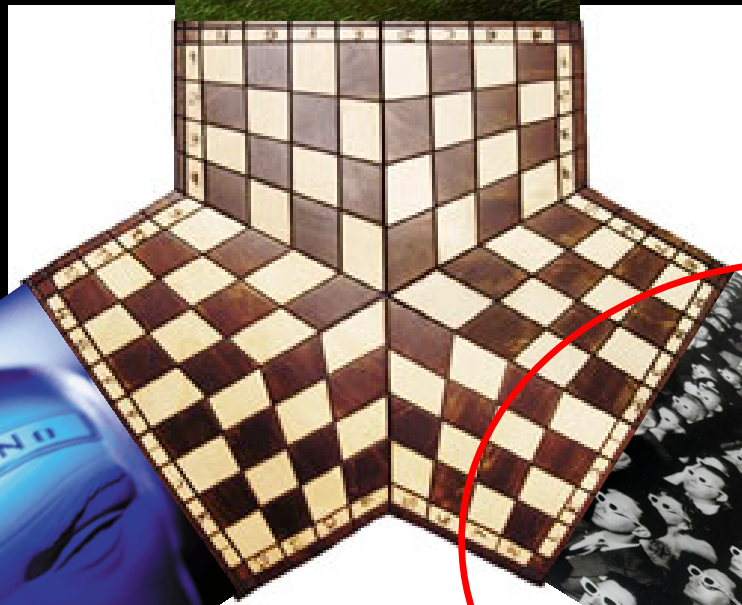


"But we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong"

Medical Journal of Australia, Richard Horton
(editor of Lancet)



Editors



Reviewers



Authors





I don't need to tell you how things are, Miss Franklin. Non-scientists thing of science as universal. Celestial, even. But science is terrestrial. Territorial. Political.

William Nicholson, English chemist (1753-1815)



Evaluation of scientists: number of papers ✓
positions authors' lists ✓
journals' IFs ✓

(In Japan, Spain and other places such assessments have reached a formulaic precision)

So, money and positions are distributed based on performance indicators (personal IF)

(Lawrence 2003, "The politics of publication")

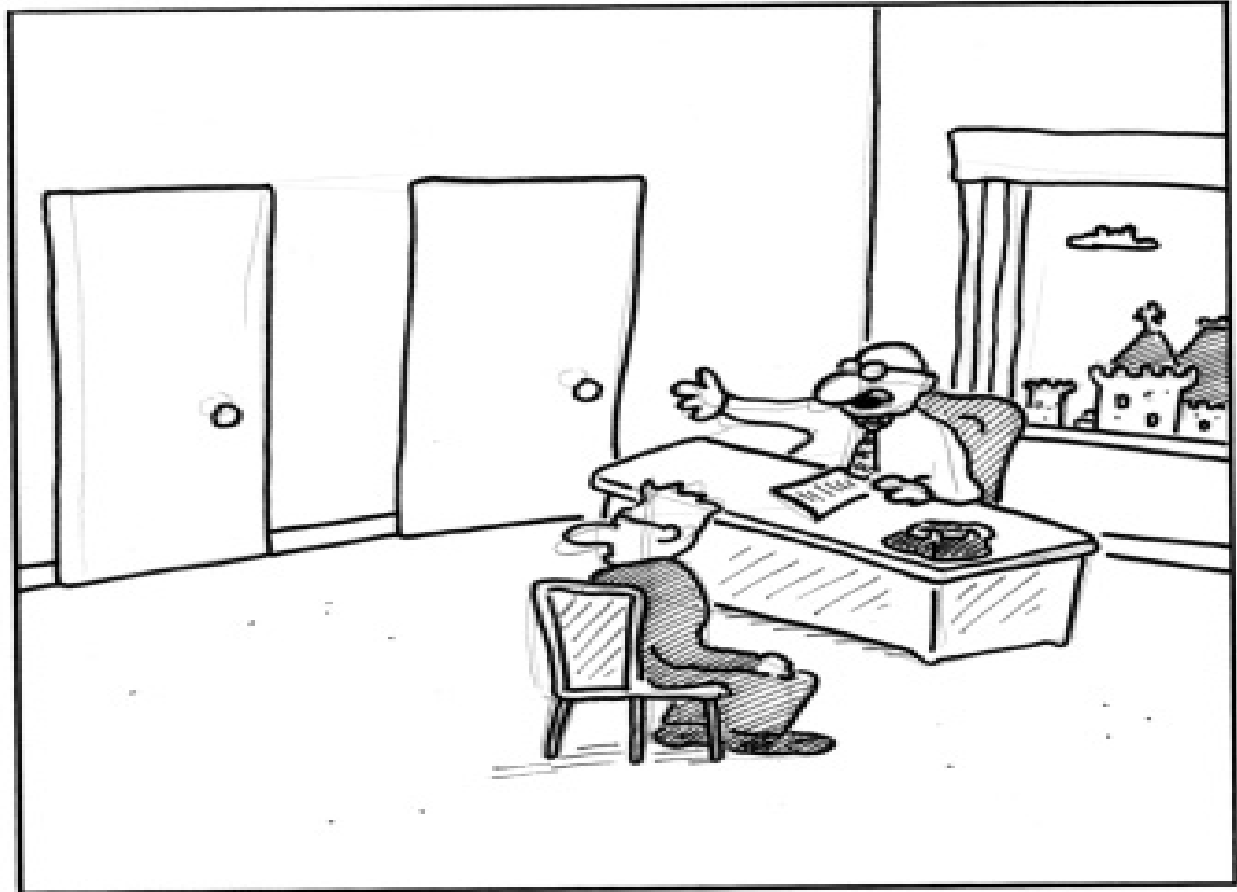


Young scientists see a paper in good journal as their initiation into the scientific elite

If we publish a *Nature* we have arrived,
if we don't we haven't

Established scientists seek high IFs to certify their reputation but also for grants

(Lawrence 2003, "The politics of publication")



"Behind one door is tenure - behind the other is flipping burgers at McDonald's."

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When submitting the paper:

- ✓ Submit as early as possible (two are better than one and of course you don't want to be scooped)
- ✓ Find out when and where your competitors are planning to submit and submit yours at the same time (the editor can be persuaded then that the topic is "hot")
- ✓ Separate findings and submit them in different journals
- ✓ Separate the roles: The post-doc does the work, the group-leader writes the paper

Agonizing over presentation as well as timing of submission keeps scientists awake at night (Lawrence 2003)

When or before submitting:

- ✓ Try courting the editors in “pre-submission enquiries”, telephone calls
- ✓ Try pulling rank (you or your supervisor), using contacts, threatening and bullying
- ✓ Spend time with the right people in conferences (networking)

Pushiness and political skills are rewarded (Lawrence 2003)

When preparing the manuscript:

- ✓ Can the results be hyped to make them look more topical?
- ✓ Are there some trendy stock phrases that can be used?
- ✓ Would over-simplification add to the appeal?
- ✓ Could a lofty take-home message be made to fit?
- ✓ Can even a tenuous link to human disease be found?
(Lawrence 2003)





and very important...

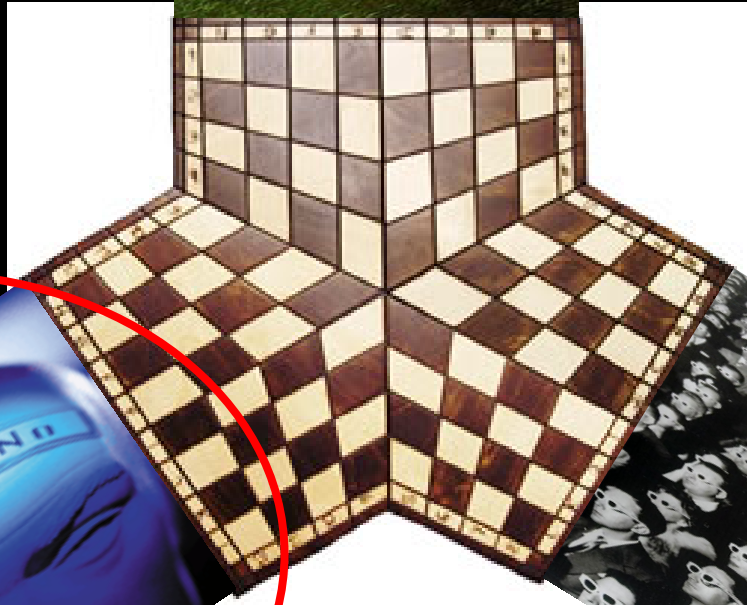
✓ Make “bold claims” about the extraordinary novelty or importance of the results presented (it will get the paper out to reviewers and then you can it back!)

✓ Especially for young ones: Move to a large lab where is more likely to get one or papers in high IF, be the PI's favoured post-doc and then when you “need” the publication your name can be inserted in the authors' list

(Brookfield 2003: The system rewards a dishonest approach)



Editors



Reviewers



Authors





✓ Difficult to judge the manuscripts of a good friend or competitor

✓ Mutual favours occur, emergence of scientific lobbies (establishment of “popes” or “aristocrats” in the scientific community)

✓ Young scientists find it difficult to publish because the journals' space is limited and saved for the “science aristocrats” and their friends

(Schmid, 2003 “Blind submission”)

✓ A reviewer can use information from the paper to change his own and even to publish it somewhere else before yours

Don't forget reviewers are also authors



Each individual case reported here or all of them may be rare in reality but they reveal that the whole evaluation system based on the IF is not problem-free



Impact factor
good servant (?), but a bad master!

(Spala 2006)