

National Doctoral Programme in Informational and Structural Biology

The 10th ISB Students' Spring Meeting Naantali 17-18 May 2004 Yyteri 30-31 May 2005 Själö-Seili 18-19 May 2006 Nagu 30-31 May 2007 Lammi 28-29 May 2008 Konnevesi 27-28 May 2009 Satava 27-28 May 2010 Själö-Seili 26-27 May 2011 Varala 28-29 May 2012 Nagu 23-24 May 2013

# Casual views on writing and the publication process

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is b National Doctoral Programme in Informational and Structural Biology

## Strunk & White

- Elements of Style, 1918 (ca. 5\$ at Amazon)
- http://www.bartleby.com/141/
- Simple and only a few rules to guide you

#### I. INTRODUCTORY

#### II. ELEMENTARY RULES OF USAGE

- 1. Form the possessive singular of nouns with 's
- 2. <u>In a series of three or more terms with a single</u> conjunction, use a comma after each term except the last
- 3. Enclose parenthetic expressions between commas
- 4. Place a comma before and or but introducing an independent clause
- 5. Do not join independent clauses by a comma
- 6. Do not break sentences in two
- 7. A participial phrase at the beginning of a sentence must refer to the grammatical subject
- 8. <u>Divide words at line-ends, in accordance with their formation and pronunciation</u>

#### III. ELEMENTARY PRINCIPLES OF COMPOSITION

- 9. Make the paragraph the unit of composition: one paragraph to each topic
- 10. As a rule, begin each paragraph with a topic sentence; end it in conformity with the beginning
- 11. Use the active voice
- 12. Put statements in positive form
- 13. Omit needless words
- 14. Avoid a succession of loose sentences
- 15. Express co-ordinate ideas in similar form
- 16. Keep related words together
- 17. In summaries, keep to one tense
- 18. Place the emphatic words of a sentence at the end

#### IV. A FEW MATTERS OF FORM

#### V. Words and Expressions Commonly Misused

#### VI. WORDS COMMONLY MISSPELLED

## Doolittle's Rules

- "Revise, revise, revise"
- "Remember Rule 13" (S&W)

#### 13. Omit needless words.

Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all his sentences short, or that he avoid all detail and treat his subjects only in outline, but that every word tell.

Many expressions in common use violate this principle:

the question as to whether	whether (the question whether)
there is no doubt but that	no doubt (doubtless)
used for fuel purposes	used for fuel
he is a man who	he
in a hasty manner	hastily
this is a subject which	this subject
His story is a strange one.	His story is strange.

## The abstract

- I-2 sentences background
- I-2 sentences on the problem addressed
- I-2 sentences on the key results
- I-2 sentences on the interpretation, meaning and/or importance
- Apply rule 13 and revise, revise, revise

## Rules in Finland

- Cross out all of the articles (the, a, an) and put them in all the other places (well, almost)
- An/a use by +/- presence of vowel sound: "a harmless goat" versus "an honorable man"; an 'm', a man
- Cross out "Also" at the beginning of sentences and change to "too" at the very end
- If it is still true today, use present tense; else it implies no longer valid
- Word order often reversed
- Flipping between British english (more double consonants) to American english (z in realize, etc)

# Publishing

- Do the research
- Write it up for a journal (or presentation)
- Get OK's from all participants
- Give credits to those that deserve it, funders too
- Select a journal and follow the style and limits
- Submit (coauthor approved) and wait for the reviews
- Revise the text, do additional experiments, addressing criticisms (involve coauthors)
- In the worst case, resubmit elsewhere

## Beware of the coauthor

- "I did not proof my section because I thought you would do it"
- "I also did not proof my section ..."
- Me:"Where did this text come from?"
- Don't just accept material blindly from coauthors, dig into it and understand it, and get it reworked
- "I never proof the references"

### The Reviewer

- One of 2-3 volunteers invited by the editor, but often those that you suggest
- Generally given 2 weeks but often the reviews are returned late
- Private comments to the editor and public comments to the authors

# What I hate, part I

- Text that requires days to review because it is written badly and you cannot be sure ...
  - English as a second language
  - Quite often, text that is hard to follow and understand (rules 9 and 10!)
  - Complicated phenomena with lots of hidden assumptions, poorly presented

# Swinglish and Finglish

- When I write in finnish or swedish I get a native to proof my text before I submit it
- You should do the same with english, even if english is your native language
- After a while you become blind to your own text – A second pair of eyes can point out other issues with the writing

# A lack of clarity

- If the reviewer cannot follow the logic, how in the hell<sup>a</sup> can you expect others to do so - a clear reason for rejection
- Aim for
  - Crystal clear statements
  - Break down complicated issues to simplify
  - Use numbered lists, tables and figures to help explain difficult issues

<sup>a</sup> Rule 13

# The Easter Egg Hunt

- Clue I to my research is in reference 29
- Methods are in papers 7 and 8 (and 8 refers to reference 16)
- The message: "Go read them if you want to follow this paper ..."
- ("Argo ....")

# What I hate, part II

- Shoddy computational work (experimental work)
- Absolute abuse/incompetence in responsible use of molecular models and other computational techniques
- Lack of understanding of the basis for a technique and the underlying caveats

# A little of this, a little of that

- Punch buttons on a variety of programs
- Suggest that they support the results
- Then you realize that a collection of webbased tools were used regardless of whether they were pertinent to the problem

## Cyclic and mistaken arguments

- "The model must be correct because it looks like the X-ray (or NMR) structure I based it on"
- "My model A, based on X-ray of A, shows a key change in the conformation of residue L257"
- "According to Procheck, the model is perfect!"
- 'I ran "whatsit" and it says it looks like a real protein structure
- "My docking indicated there are over 37 different sites possible for ATP binding"

# Authors that are out of their depth

- Lack of competence is evident
- Lack of awareness of the caveats associated with a technique
- Lack of guidance to a reader on realistic and self-critical interpretations
- I am always amazed when authors are clearly working in a new area and they really have done the background investigation, and they know the pitfalls

# What I hate, part III

- Advertisements with no added value
  - "Here are my results! Give me a prize!"
- No self-criticism or reflection
  - "My results are absolutely the answer!"
- Photocopy crystallography

# What I try to do, part I

- Give extensive corrections (the english has got to be right sometimes in order for the paper to go forward)
- Point out details that the authors surely have but which they are keeping from the reader even though they are needed

# What I try to do, part II

- Check for republishing of the same material
- Check for malpractice by omission (no credit to earlier works) or credit to only late "re-discoverers"
  - Nowadays, terrible for pre-web papers
  - They can be obtained, but we are lazy?
  - It's criminal

# What I try to do, part III

- Spot check the paper for plagiarism
- Examine the paper carefully for suitability of the methods
- Check for absolute nonsense (sometimes you just cannot believe what you read)
- Ask for clarifications and more data if it can help get the paper to a publishable state

### What I like to see

- Clear appreciation of the levels of confidence on the results and interpretations
- Clear descriptions of the assumptions
- Appreciation of other explanations and where the interpretation may be wrong
- Careful use of language to distinguish facts from suppositions
- A mature and balanced treatment

### What I often see

- Confidence that is unjustified
- Single-minded views
- Facts and wishes that are indistinguishable in the authors' minds
- An ego-centric publication aiming to advertise

### In the end

- My opinion is not necessary agreed to by the other reviewer or the editor
- I try to give the benefit of the doubt but require revisions almost always because I want to make sure the paper is improved
- I try not to set additional requirements in a second review unless parts could not be understood in the first review
- Reviewers do appreciate greatly that the authors took into account the criticisms and made corrections
- Reviewers also accept that they may have misunderstood,
   but then the authors should have written clearer text
- Reviewers are not always ethical; reviews can hurt

# Scientific Misconduct in Publications

- A rich area for discussion
- Occurs all of the time
- Fraud, duplicate publication, plagiarism, carelessness



Infect Immun. 2011 October; 79(10): 3855-3859. PMCID: PMC3187237

doi: 10.1128/IAI.05661-11

#### Retracted Science and the Retraction Index <sup>▼</sup>

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Arturo Casadevall, Editor in Chief

R. P. Morrison, Editor

<u>Author information</u> ► <u>Copyright and License information</u> ►

This article has been cited by other articles in PMC.

**ABSTRACT** Go to: ₩

Articles may be retracted when their findings are no longer considered trustworthy due to scientific misconduct or error, they plagiarize previously published work, or they are found to violate ethical guidelines. Using a novel measure that we call the "retraction index," we found that the frequency of retraction varies among journals and shows a strong correlation with the journal impact factor. Although retractions are relatively rare, the retraction process is essential for correcting the literature and maintaining trust in the scientific process.

"A man who has committed a mistake, and doesn't correct it, is committing another mistake."

-attributed to Confucius

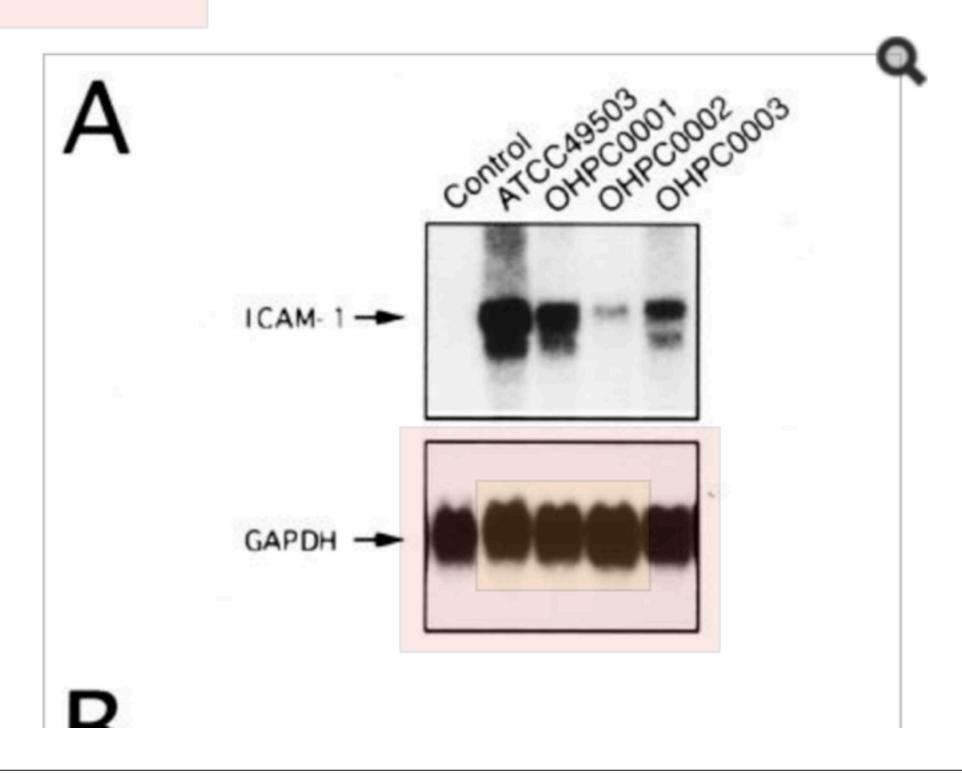
Of more than 28,000 articles in its 40-year history, *Infection and Immunity* has issued only 15 retractions. Six of these were issued this year and arose from a single laboratory (52-55, 87, 89). This has prompted us to reflect on the process of manuscript retraction and its importance for science and to add to our essay series commenting on the descriptors and qualifiers of present-day science (13-16, 27, 28).

Reasons for retraction. Eight of the articles retracted by Infection and Immunity, including the six most recent instances, were found to contain digital figures that had been inappropriately manipulated (51-55, 78, 87, 89). Six of the others were retracted by the authors after they determined their previously reported findings to be unreliable: two were unable to confirm their original results (42, 67), one discovered that a cDNA library was actually obtained from another organism (38), and three found a critical reagent to be impure (19, 49, 61). The remaining article was retracted due to extensive plagiarism (43). This is a reasonably representative sample of the reasons for manuscript retraction discussed in guidelines from the Committee on Publication Ethics (COPE) (93, 94). A COPE survey of Medline retractions from 1988 to 2004 found 40% of retracted articles to be attributed to honest error or nonreplicable findings, 28% to research misconduct, 17% to redundant publication, and 15% to other or unstated reasons. Research misconduct is classified as falsification or fabrication, with falsification defined as the manipulation of materials, processes, or data to misrepresent results and fabrication defined as reporting the results of experiments that were not actually performed (57). Plagiarism refers to the misrepresentation of another's ideas or words as one's own and includes self-plagiarism,

From: Infect Immun. 2000 April; 68(4): 1806-1814.

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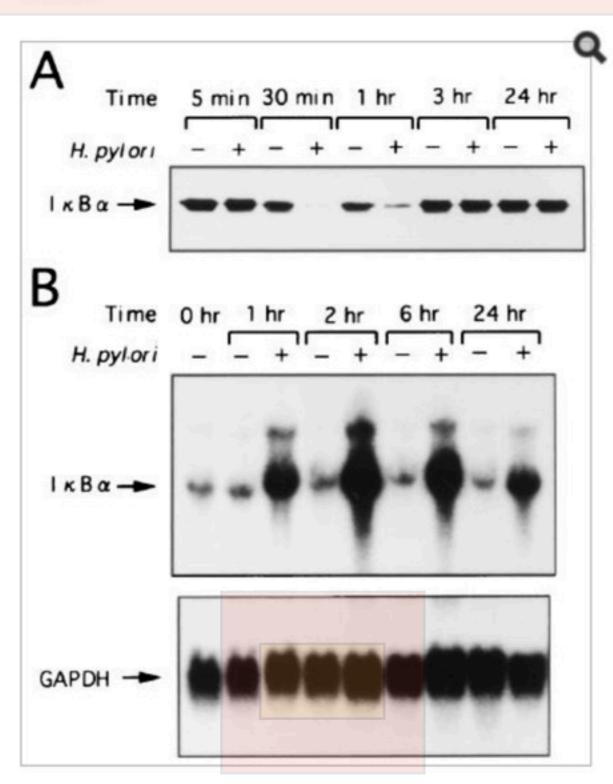
FIG. 2



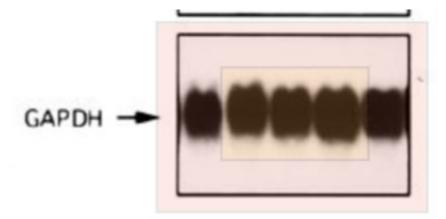
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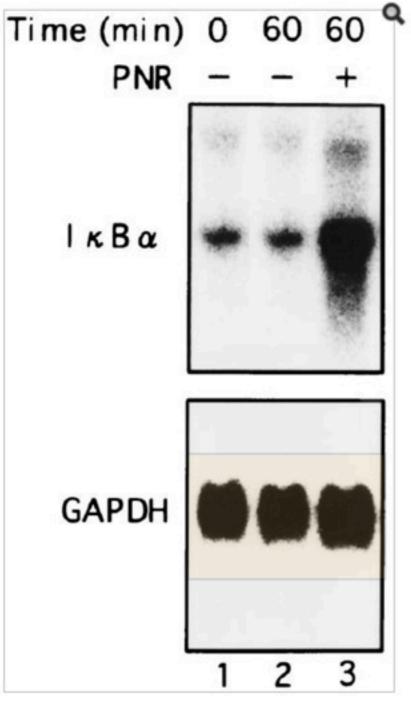
FIG. 6



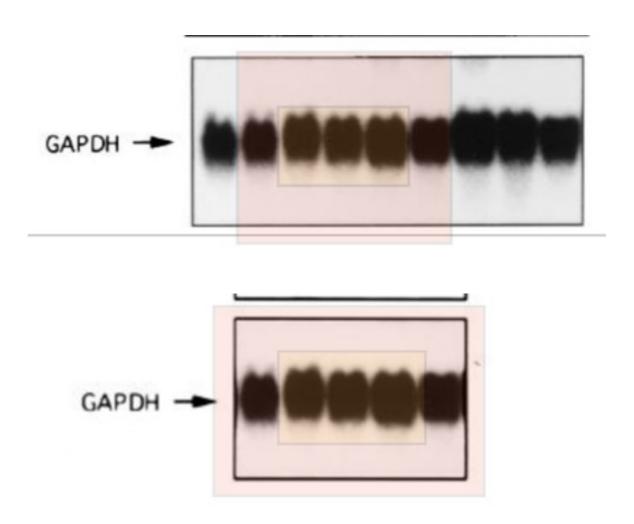
From Fig. 2



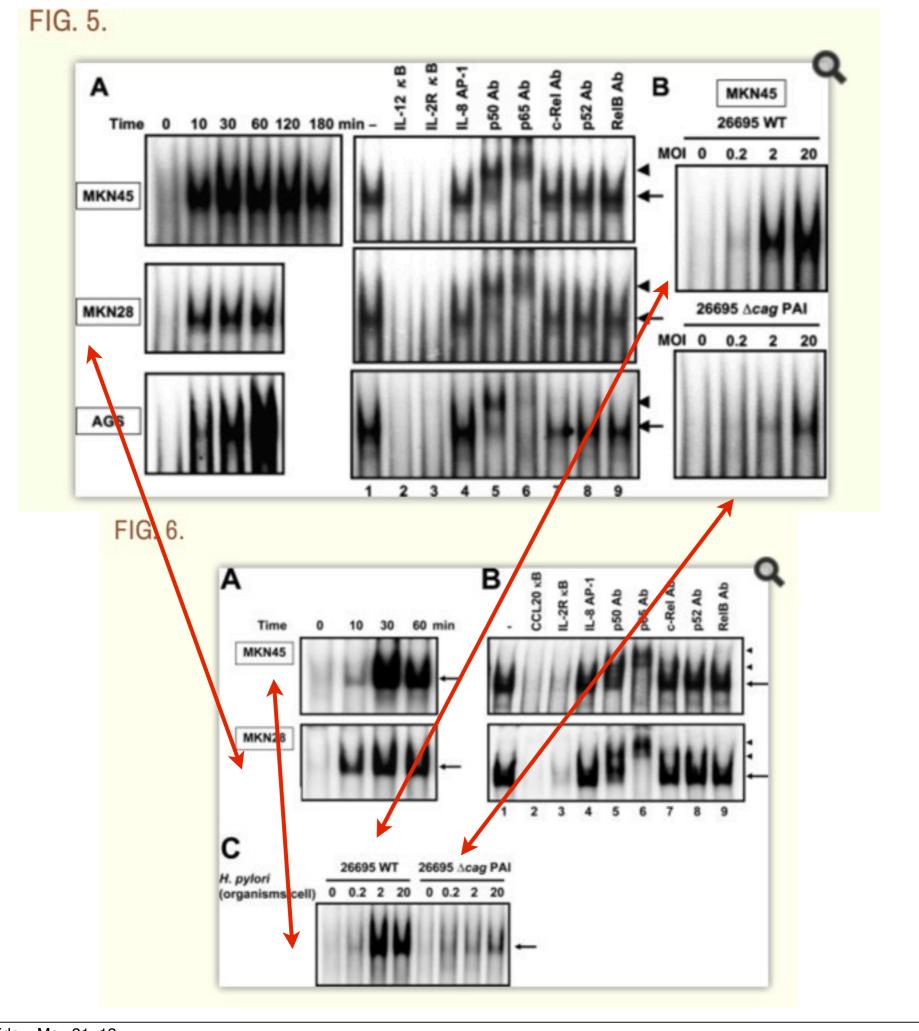




#### From Fig. 6, year 2000 paper



From Fig. 2, year 2000 paper



#### Scientific misconduct to blame for many retractions in the life sciences

Retraction of flawed scientific publications is an important part of the scientific process, serving to correct the scientific literature. Ferric Fang et al. (pp. 17028–17033) conducted a comprehensive review of retracted biomedical and life sciences research articles listed in the PubMed database and found that approximately two-thirds of these retractions were due to some form of misconduct. Of the retractions studied, the authors say 43.4% were retracted due to fraud or suspected fraud, 14.2% due to duplicate publication, 9.8% due to plagiarism, and the rest were retracted because of miscellaneous or unknown reasons. The percentage of scientific articles retracted due to fraud has

increased approximately 10-fold since 1975, with a smaller increase in retractions due to error, the authors report. The United States, Germany, Japan, and China accounted for three-quarters of retractions due to fraud or suspected fraud, while China and India accounted for the majority of retractions due to plagiarism and duplicate publication, the study suggests. Retractions due to fraud or error were associated with journals with significantly higher impact factors compared with retractions due to plagiarism and duplicate publication. According to the authors, scientific misconduct appears to have played a more prominent role in retractions in the biomedical literature than previously thought. — S.R.

www.pnas.org/cgi/doi/10.1073/iti4212109

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# Misconduct accounts for the majority of retracted scientific publications

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Edited by Thomas Shenk, Princeton University, Princeton, NJ, and approved September 6, 2012 (received for review July 18, 2012)

A detailed review of all 2,047 biomedical and life-science research articles indexed by PubMed as retracted on May 3, 2012 revealed

published by the authors of a manuscript in the *Journal of Cell Biology* stated that "In follow-up experiments . . . we have shown

# Fraudsters and the careless seek high impact; plagiarists seek to hide out in lower impact journals

Journal	No. of articles	IF	
Total			
Science	70	32.45	
Proceedings of the National Academy of Sciences	69	10.47	
The Journal of Biological Chemistry	54	5.12	
Nature	44	36.24	
Anesthesia & Analgesia	40	3.07	
The Journal of Immunology	34	5.86	
Blood	28	9.79	
The Journal of Clinical Investigation	23	15.43	
Cell	22	34.77	
Biochemical and Biophysical Research Communications	18	2.52	
The New England Journal of Medicine	16	50.08	
The EMBO Journal	15	8.83	
Journal of Hazardous Materials	15	4.55	
Molecular and Cellular Biology	15	5.77	
Infection and Immunity	14	4.06	

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Fraud/suspected fraud		
The Journal of Biological Chemistry	37	5.12
Anesthesia & Analgesia	33	3.07
Science	32	32.45
The Journal of Immunology	30	5.86
Proceedings of the National Academy of Sciences	27	10.47
Blood	21	9.79
Nature	19	36.24
The Journal of Clinical Investigation	17	15.43
Cancer Research	16	8.16
Cell	13	34.77
Journal of Hazardous Materials	13	4.55
British Journal of Anaesthesia	11	3.85
The EMBO Journal	11	8.83
The New England Journal of Medicine	11	50.08
International Journal of Cancer	10	4.92
Molecular and Cellular Biology	10	5.77

5,		
Error		
Science	37	32.45
Proceedings of the National Academy	36	10.47
of Sciences		
Nature	25	36.24
Biochemical and Biophysical Research Communications	7	2.52
Cell	7	34.77
The Journal of Biological Chemistry	7	5.12
Journal of Virology	7	5.32
The Lancet	6	33.80
Anesthesiology	5	5.19
Infection and Immunity	5	4.06
11 journals*	4*	_
Plagiarism/duplicate publication		
Molecules and Cells	8	1.99
Phytotherapy Research	7	2.47
Biotechnology Advances	5	10.96
Aesthetic Plastic Surgery	5	1.50
Annals of the New York Academy of Sciences	5	3.00
Journal of Child and Adolescent	4	None
Psychiatric Nursing Archives of Iranian Medicine	4	0.07
	4	0.97
Resuscitation	4	3.02
Clinical Rheumatology	4	1.72
The New England Journal of Medicine	4	50.08

Fang et al.

## Retraction requires discovery and then action

PNAS

Table 2. Mean time-to-retraction by category

	Months to retract		
Cause of retraction	n	(Mean)	SD
All causes*	2,047	32.9	34.2
Fraud (fabrication/falsification)	697	46.8	38.4
Suspected fraud	192	29.4	30.0
Plagiarism	200	26.0	32.6
Duplicate publication	290	27.0	30.1
Error	437	26.0	28.0
Other	108	19.8	31.1
Unknown	182	22.1	25.4

<sup>\*</sup>Some articles fall into more than one category.

#### MEDICAL SCIENCES

Correction for "Misconduct accounts for the majority of retracted scientific publications," by Ferric C. Fang, R. Grant Steen, and Arturo Casadevall, which appeared in issue 42, October 16, 2012, of *Proc Natl Acad Sci USA* (109:17028–

17033; first published October 1, 2012; 10.1073/pnas. 1212247109).

The authors note that Table 3 appeared incorrectly. The corrected table appears below.

## Fraudulent papers do damage over time

Table 3. Most Cited Retracted Articles

First author	Journal	Year published	Year retracted	Times cited*	Reason for retraction
Wakefield	Lancet	1998	2004; 2010	758	Fraud
Reyes	Blood	2001	2009	740	Error
Fukuhara	Science	2005	2007	686	Error
Nakao	Lancet	2003	2009	626	Fraud
Chang	Science	2001	2006	512	Error
Kugler	Nature Medicine	2000	2003	494	Fraud
Rubio	Cancer Research	2005	2010	457	Error
Gowen	Science	1998	2003	395	Fraud
Makarova	Nature	2001	2006	375	Error
Hwang	Science	2004	2006	368	Fraud
Potti	The New England Journal of Medicine	2006	2011	361	Fraud
Brugger	The New England Journal of Medicine	1995	2001	336	Fraud
Van Parijs	Immunity	1999	2009	330	Fraud
Potti	Nature Medicine	2006	2011	328	Fraud
Schön	Science	2000	2002	297	Fraud
Chiu	Nature	2005	2010	281	Error
Cooper	Science	1997	2005	264	Fraud
Le Page	Cell	2000	2005	262	Error
Kawasaki	Nature	2004	2006	243	Fraud
Hwang	Science	2005	2006	234	Fraud

<sup>\*</sup>As of June 22, 2012

www.pnas.org/cgi/doi/10.1073/pnas.1220649110

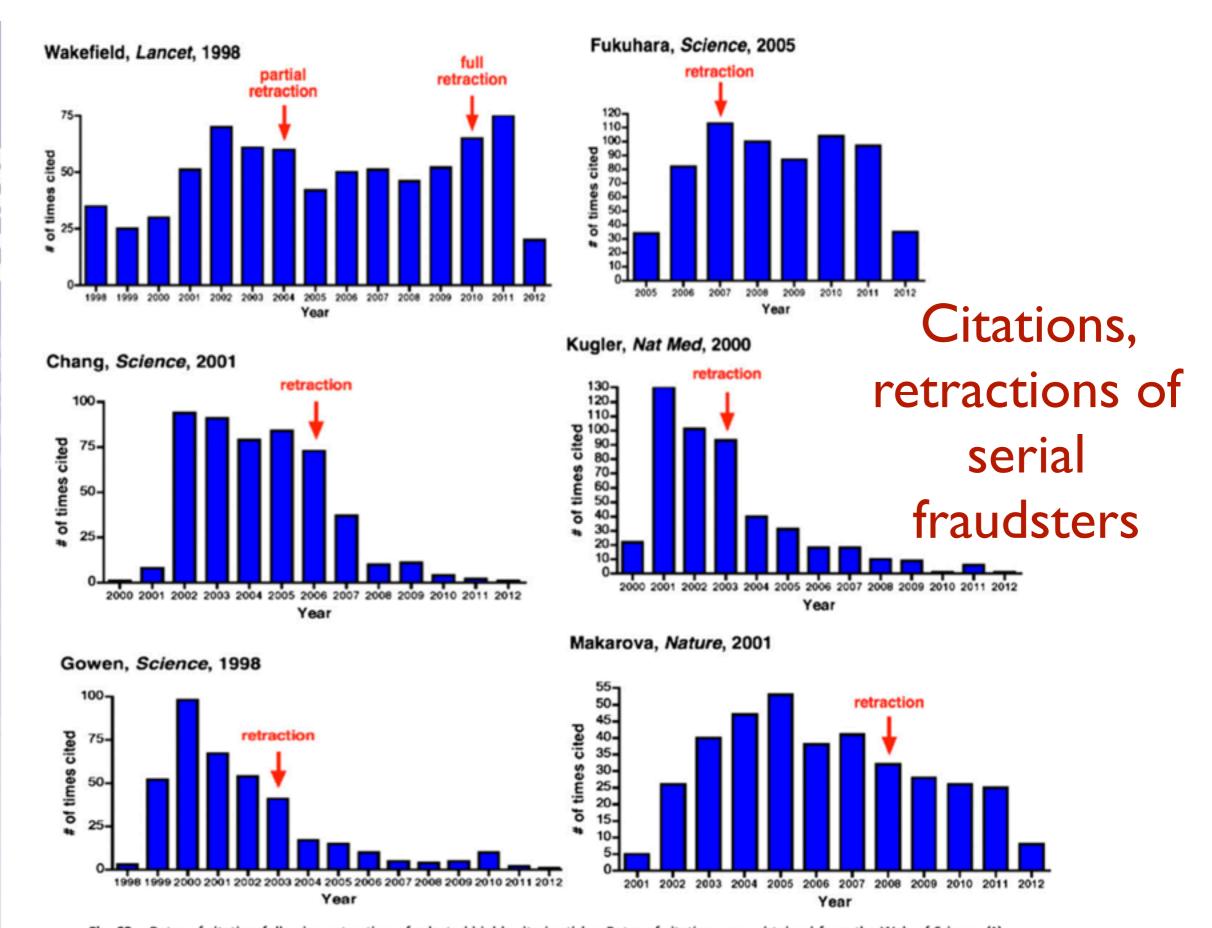
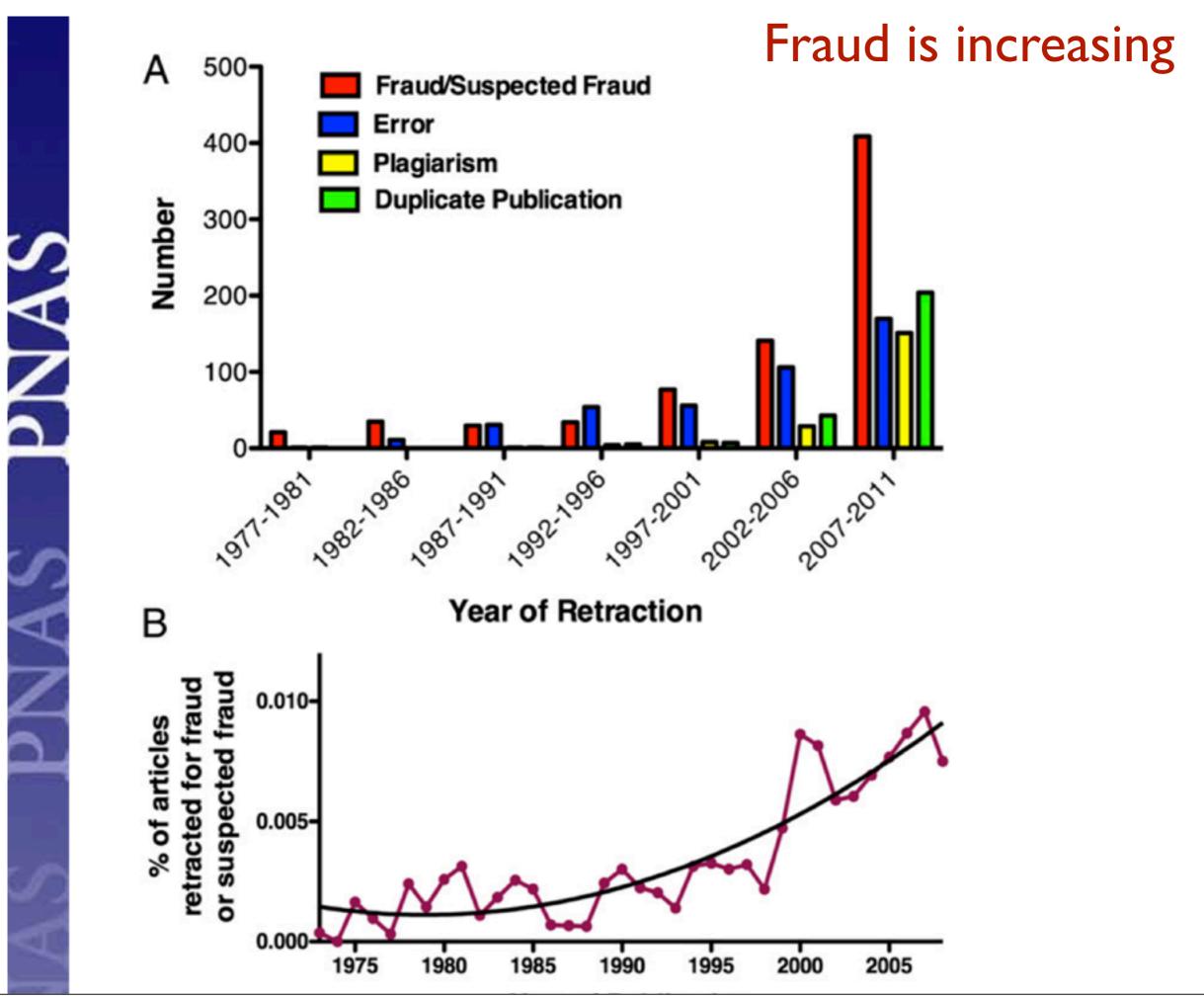
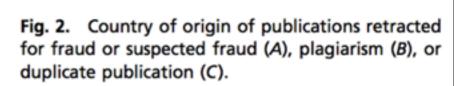


Fig. S3. Rates of citation following retraction of selected highly cited articles. Rates of citation were obtained from the Web of Science (1).

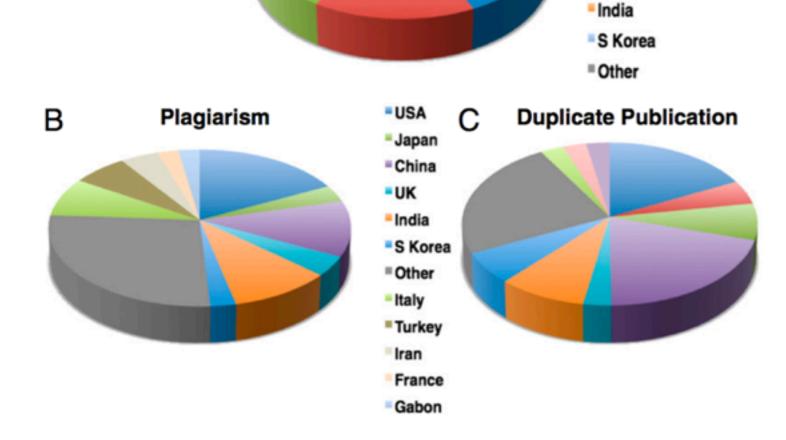


## Fraud mainly in the most competitive countries

## Plagiarism and duplicate publication is more widespread Germany







Fraud or Suspected Fraud

-USA

Germany

Japan

China

-USA

Japan

China

UK

India

S Korea

Other

Italy

Australia

Canada

UK

Fang et al.

Α

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## A serial criminal: do it once, do it often

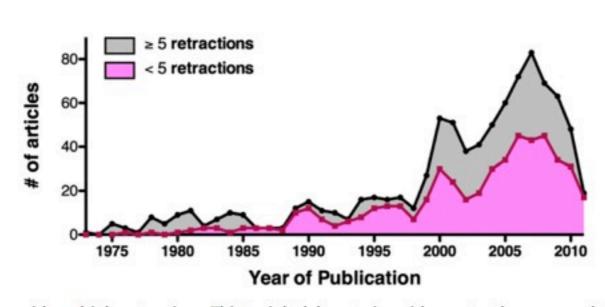


Fig. S1. The impact of research groups with multiple retractions. Thirty-eight laboratories with greater than or equal to five retractions accounted for 43.9% (n = 390) of retractions for fraud or suspected fraud (n = 889).

Table S2. Investigators with Ten or More Retracted Articles\*

Author	No. of Retractions	Reason for Retraction
Boldt, J	80	fraud
Mori, N	36	fraud
Herrmann, F	21	fraud
Reuben, SS	18	fraud
Slutsky, RA	18	fraud
Matsuyama, W	17	fraud
Schön, JH	17	fraud
Darsee, JR	14	fraud
Goldstein, G	14	error
Pease, LR	14	fraud
Bulfone-Paus, S	13	fraud
Wang, Z	12	fraud
Soman, VR	11	fraud
Chiranjeevi, P	10	fraud
Potti, A	10	fraud
Sudbø, J	10	fraud
Thomas, JM	10	fraud

<sup>\*</sup>when multiple individuals from a single research group have been authors on retracted articles, the individual from the group on the greatest number of articles is listed

### Naoki Mori: 36 retracted works

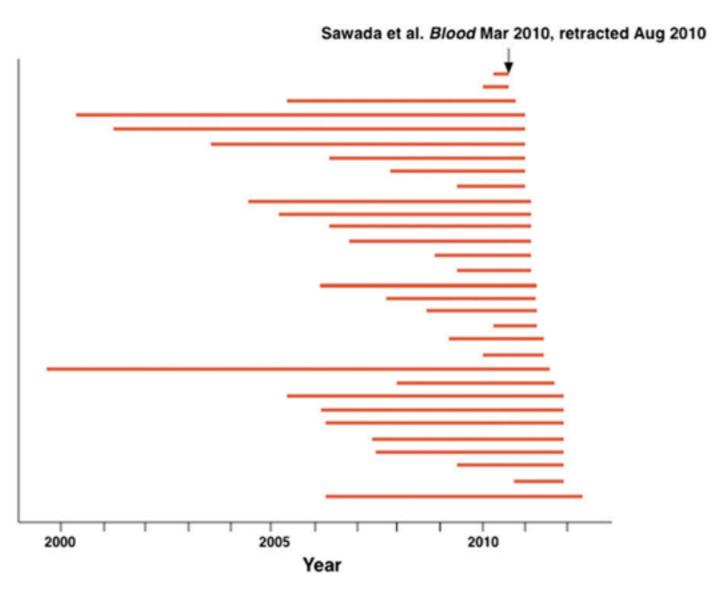


Fig. S2. Timeline of retracted articles from the laboratory of N. Mori. Each line represents one article and the length of the line is proportional to the time from publication to retraction.

Tracking retractions as a window into the scientific process

Cracking the Mori case: A reviewer describes how manipulated images came to light

During what turned out to be a "painful" review of the manuscript:

I noticed problems with duplicated control actin bands within the same manuscript—sometimes within the same figure! It was astonishing.

Our source describes Mori as someone "who characteristically publishes very weak papers. And a lot of them." Those two facts raised this scientist's suspicions that the dodgy actin bands weren't simply a one-off problem. Going online, the reviewer found and printed out a slew of Mori's previous publications.

For two days, I worked in my office with several of my graduate students, sitting on the floor, and cutting out figures from the numerous Mori papers. We created piles of figures that had many of the same \(\mathscr{B}\)-actin RT-PCR "control" bands used throughout. We found that several versions of the \(\mathscr{B}\)-actin RT-PCR and Western "control" bands in many published papers, as well as GAPDH bands, reused \(\frac{EMSA}{2}\) data [a technique for studying how proteins interact with DNA or RNA molecules], and on and on. Importantly, there were examples where the same bands were deliberately altered by increasing the width of a band series to give the impression that the bands were more intense. Yet a pixel-by-pixel examination of the band series very clearly shows the bands are identical in origin, and simply altered by stretching vertically. Mori was very, very intentional — and cavalier — in his efforts to fabricate and falsify.

Armed with evidence, the reviewer notified the journal. The response wasn't exactly reassuring.

Yet oddly, they said that they agreed there was a problem with the submitted manuscript under review and that ASM [American Society of Microbiology] had sufficient evidence to reject it [which it did]. But they did not express interest in pursuing it beyond ASM. I felt like so much more needed to be done.

(See <u>comment below</u> from the ASM.)

More included contacting the editor of *Blood*, which had recently posted two of Mori's articles online ahead of print (those papers have <u>since been retracted</u>).

Amazingly, Mori's university was contacted immediately and an investigation ensued. I say amazing, as this is the fifth serious case of scientific misconduct I've encountered in my reviewing of grants for NIH and reviewing manuscripts since 2004.

That was back in mid-March 2010. According to our source, Mori's institution, the University of the Ryukyus, looked at 50 of his papers, finding 37 that had "anomalies." By August, as we now know, Mori was out of a job.

Such rapid resolution is almost unheard of in the U.S., according to our source.

We'll give our source the last word here, because we can't express it any better:

I have had graduate students base their hypotheses and experiments on data from the Mori papers ... What a waste. I am angry. Mori, like several of the others I've stumbled upon, has been doing this data fabrication for so long that he'd become cavalier about it. He just didn't think he would ever be caught.

Written by amarcus41

January 24, 2011 at 12:39 pm

Tracking retractions the scientific process

Page

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#### Back in the saddle: After more than 30 retractions, Naoki Mori publishing again

with 41 comments

Perhaps it's appropriate given the Easter season, but we have learned that Naoki Mori, the Japanese cancer researcher who received a 10-year publishing ban from the American Society of Microbiology (ASM) for imagine manipulation, has published a new paper.

Mori, who was fired and then rehired by the University of the Ryukyus over the scandal, is listed as the senior author on the paper, "Honokiol induces cell cycle arrest and apoptosis via inhibition of survival signals in adult T-cell leukemia," which appears in the March issue of Biochimica et Biophysica Acta. The journal, an Elsevier title, is an umbrella for nine publications in the biosciences.



Naoki Mori

Re the first to like this

Written by amarcus41 April 6, 2012 at 9:30 am Posted in Biochimica et Biophysica Acta, cell biology, elsevi japan retractions, naoki mori retractions, oncology retraction

The Watc The Tran Upco Watc What ahou

## Has been rehired, and is publishing his gels again

#### References [edit]



- 1. ^ Profile: Professor Naoki Mori &, Austral-Asian Journal of Cancer, January 2008
- 2. ^ a b c d Normile, Dennis (19 January 2011). "Japanese Virologist Loses Job, Gets Publishing Ban for Image Manipulation" ☑. Science. Retrieved October 27, 2011.

- Marcus, Adam (12 October 2011). "That's a Mori! Seven more retractions brings latest count to 30" . RetractionWatch.
- 6. ^ Another retraction for Naoki Mori (make that 23?)
- 7. ^ ScienceDirect.com Biochemical and Biophysical Research Communications RETRACTED: Downregulation of citrin, a mitochondrial AGC, is associated with apoptosis of hepatocytes &
- 8. \* Jump, Paul (13 January 2011). "'Manipulation' nets virologist a 10-year journal ban" . Times Higher Education. Retrieved 27 October 2011.
- 9. A Back in the saddle: After more than 30 retractions, Naoki Mori publishing again &
- 10. ^ ScienceDirect.com Biochimica et Biophysica Acta (BBA) General Subjects Honokiol induces cell cycle arrest and apoptosis via inhibition of survival signals in adult T-cell leukemia