Ethics in Science and Good Scientific Practice

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"You are completely free to carry out whatever research you want, so long as you come to these conclusions."

Ulm, 15 January 2019

Ethics in Science and Good Scientific Practice: topics covered

1 Why Ethics and Good Scientific Practice?

2 Is it a Problem?

* Fraud
* Retracted publications
  * Most affected journals and countries
  * Affected research fields

3 Good Scientific Practice

  * Examples of misconduct

4 Publishing: Predatory Journals

1 **Georg W. Kreutzberg**, a former MPI director, wrote in his article: The Rules of Good Science, EMBO *reports*, vol. 5, 330-332, 2004:

"We scientists think that we enjoy ***the highest degree of freedom*** *in our work. Many societies have also accepted the notion that* ***research is done best when unhindered, and have included in their constitutions the freedom of science as a basic human right.***

Science and scientists have been entrusted to set up their own rules, ***based on trust, respect and the welfare of society****. The general public shares this idealistic view of how research is done and does little to interfere with its freedom and its self-imposed rules".*

In 2018/19 it has to be added, that this view, and science in general, is **challenged by recent political developments** (*populist parties and politicians, increasing divisions in societies*) and **fundamentalists of all religions.**

Ethics in Science: 3 key sentences

The essence of science is that a **scientist at the best of his knowledge** carries out experiments **by means of currently available techniques** which yield **results, facts,** that can be **tested and repeated** and under the same experimental conditions must have the same outcome.

A scientist, regardless of who is paying for his salary or his grant,
is only committed to
science and the truth *(„facts“)*
and, thus,
TRUST
is the **most important quality** of such a scientist.

This does not mean that results of experiments cannot be debated and challenged,
it only means that the results of a particular experiment are sound,
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TRUST

Why worry about ethics?

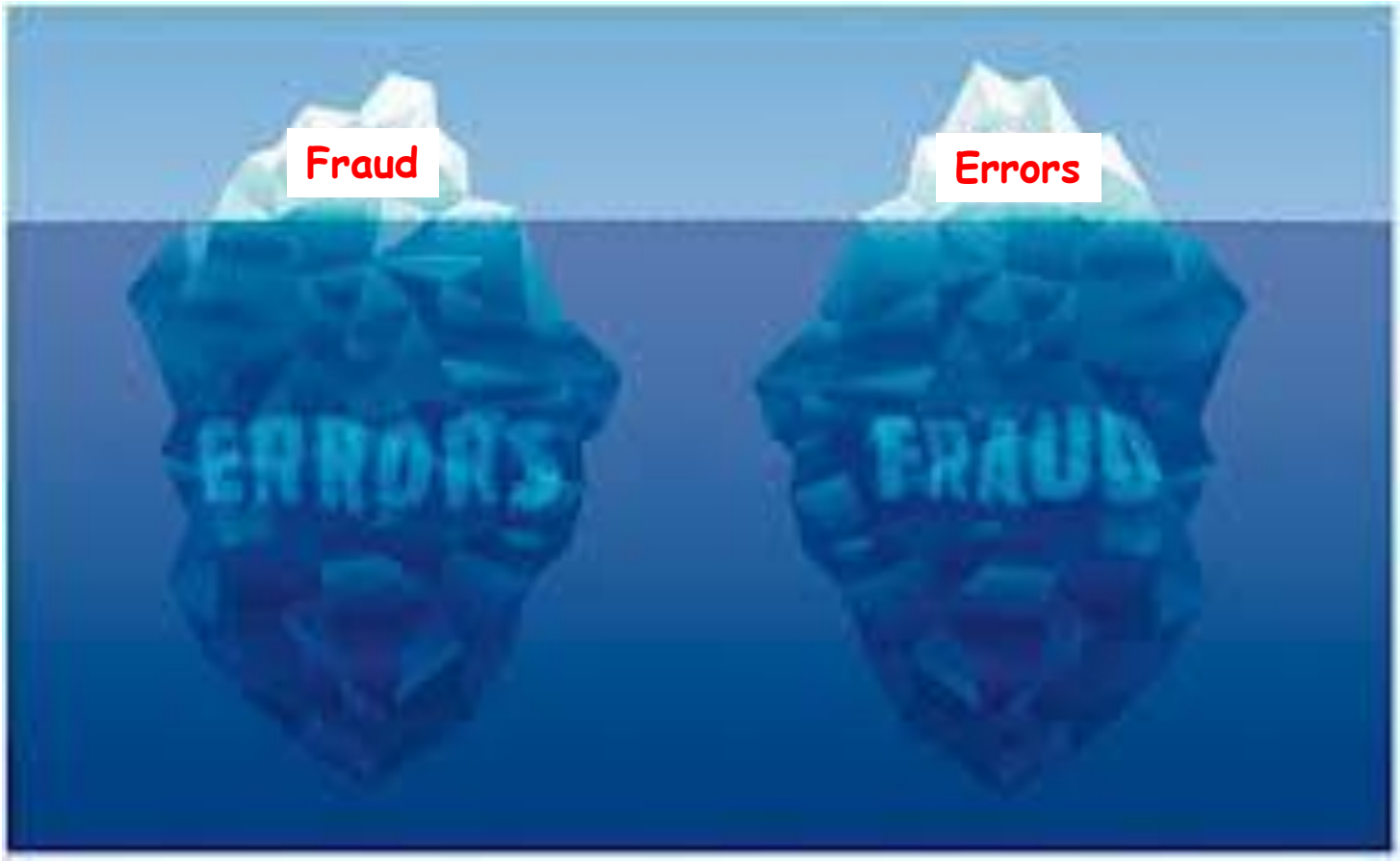
INTERNATIONAL BRAIN IBRO RESEARCH ORGANIZATION

* A system of **moral principles is essential**
  - Can the data be trusted?
  - Can **YOU** be trusted?
* Use of scientific data can have far reaching implications in the real world
* When researchers operate via the same ethical code, collaboration and sharing of data is encouraged
* Ethics committees exist for both human and animal studies
  - What are the ethical guidelines in your country of research?
* Journal requirements are increasing
  - Ethics statement
  - Conflict of interest statement

Ethical violations adversely affect your scientific integrity!

Why bother at all?

Is it a problem ?



2 Misconduct[1)], fraud [2)], plagiarism[3)] in science

* Compared to the total number of scientific publications, a still „small“ but **increasing** problem

* Most damaging, as scientists lose their **reputation of trustworthiness**

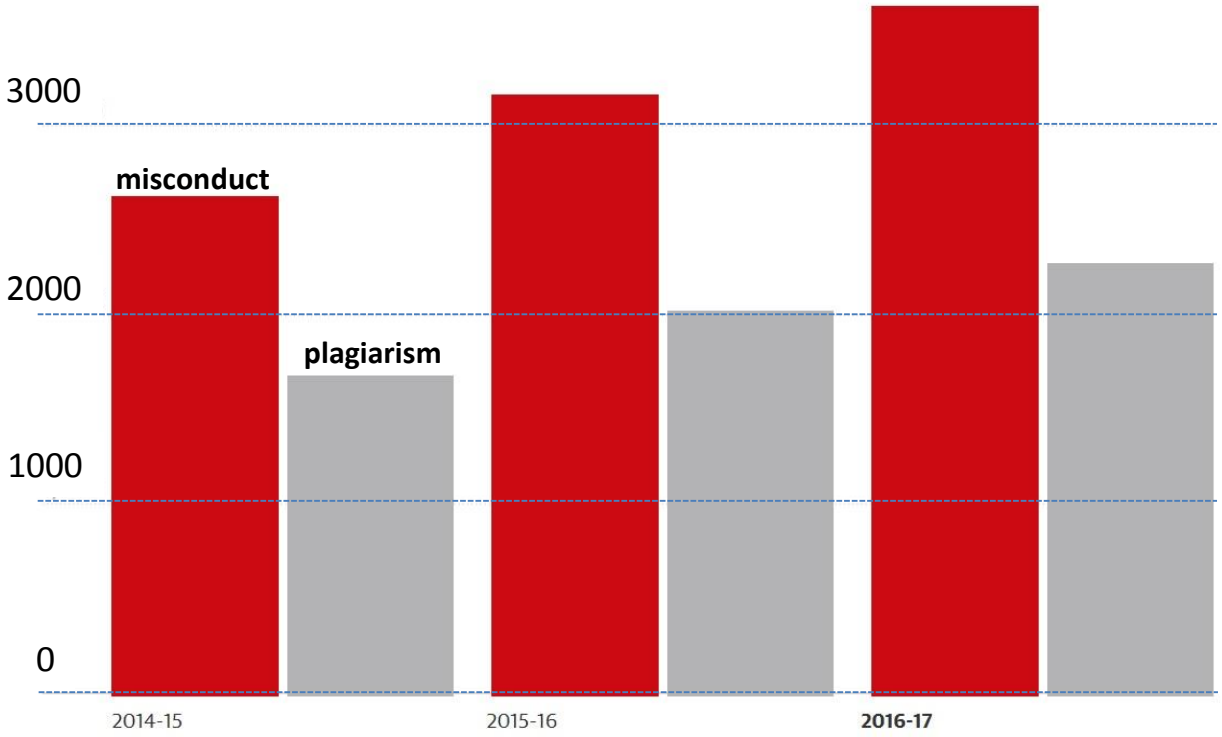
* Judged by the reasons of over 2000 retracted papers from PubMed by March 2012
  - **43.4% fraud**
  - 21.3% errors
  - 14.2% duplications
  - 09.8% plagiarism
  - 11.3 % other reasons

[1)] Misconduct = Fehlverhalten, Pflichtverletzung
[2)] Fraud = Betrug
[3)] Plagiarism = Plagiat („*abschreiben ohne Nennung der Quelle*“)

2 Misconduct, fraud, plagiarism in science

The Guardian 29 April 2018:

* number of students caught cheating at the UK's top universities increased by a third in three years
* a group of 24 leading institutions that includes Oxford and Cambridge – shows the number of academic misconduct cases **surged by 40%**, from **2,640 to 3,721, between the academic years 2014-15 and 2016-17.**



Guardian Graphic | Source: Russell Group. Note: out of 24 Russell Group universities 19 responded for academic misconduct and 15 for plagiarism

Fraud in Science

- **Jan Hendrik Schön** published in the best journals in approximately 2-week-intervals on nanotechnology and condensed matter physics, and this remained unnoticed at first
- in 2002/03, 16 of his articles were retracted
- many of his experiments could not be reproduced
- was stripped of his PhD-degree from Konstanz University
- the worst case of fraud within the last 50 year

118: a case of misconduct

COMMENT

Reputations at risk

NEWS AND ANALYSIS

Misconduct claim hits Bell Labs

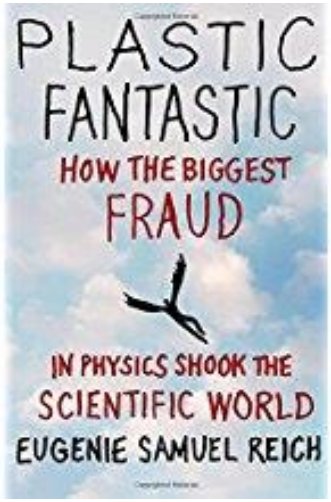
Bell Labs in the spotlight

Courtesy Björn Brembs, University of Regensburg

Fraud in Science

The following publications contained fraud and were retracted by the publishers of the journals:

- J.H. Schön, S. Berg, Ch. Kloc, B. Batlogg: Ambipolar pentacene field-effect transistors and inverters, **Science** 287, 1022 (2000)
- J.H. Schön, Ch. Kloc, R. C. Haddon, B. Batlogg: A superconducting field-effect switch, **Science** 288, 656 (2000)
- J.H. Schön, Ch. Kloc, B. Batlogg: Fractional quantum Hall effect in organic molecular semiconductors, **Science** 288, 2338 (2000)
- J.H. Schön, Ch. Kloc, A. Dodabala-pur, B. Batlogg: An organic solid state injection laser, **Science** 289, 599 (2000)
- J.H. Schön, A. Dodabalapur, Ch. Kloc, B. Batlogg: A light-emitting field-effect transistor, **Science** 290, 963 (2000)
- J.H. Schön, Ch. Kloc, H. Y. Hwang, B. Batlogg: Josephson junctions with tunable weak links, **Science** 292, 252 (2001)
- J.H. Schön, Ch. Kloc, B. Batlogg: High-temperature superconductivity in lattice-expanded C_{60}, **Science** 293, 2432 (2001
- J.H. Schön, H. Meng, Z. Bao: Field-effect modulation of the conductance of single molecules, **Science** 294, 2138 (2001)
- J.H. Schön, Ch. Kloc, B. Batlogg: Superconductivity at 52K in hole-doped C_{60}. **Nature** 408, 549-552 (2000).
- J.H. Schön et al.: Gate-induced superconductivity in a solution-processed organic polymer film. **Nature** 410, 189- 192 (2001).
- J.H. Schön, H. Meng, Z. Bao: Self-assembled monolayer organic field-effect transistors. **Nature** 413, 713-716 (2001).
- J.H. Schön et al: Superconductivity in single crystals of the fullerene C_{70}. **Nature** 413, 831-833 (2001).
- J H. Schön et al: Superconductivity in $CaCuO_2$ as a result of field-effect doping. **Nature** 414, 434-436 (2001).



* J.H. Schön challenged the decision of the University of Konstanz to deprive him of his doctoral degree (Dr.rer.nat.)
* The subsequent court case was finally decided in 2013 by the highest German court (*Federal Constitutional Court in Germany*) in favour of the University of Konstanz

Source: Wikipedia, Eugenie Samuel Reich: *Plastic Fantastic: How the Biggest Fraud in Physics Shook the Scientific World*, MacMillan Science 2009

Fraud in Science

* Am Mittwoch (1 Juli 2013) hat das Bundesverwaltungsgericht (Aktenzeichen: BVerWG 6 C 9.12) in dem Streit geurteilt, der bereits seit 2004 läuft.

„Ein redlich erworbener Doktorgrad kann wegen eines späteren unwürdigen Verhaltens in der Gestalt der Manipulation und Fälschung von Forschungsergebnissen entzogen werden“, sagte der Richter Joachim Büge, der die Verhandlung des sechsten Senats leitete.

* Eine Beschwerde gegen dieses Urteil nahm das Bundesverfassungsgericht nicht an.

* Das Bemerkenswerte daran: In seiner Promotion selbst waren dem Naturwissenschaftler zwar handwerkliche Mängel, jedoch keine Fälschungen oder Manipulationen nachgewiesen worden, aber die Regularien in Baden-Württemberg sehen ein „der Promotion würdiges Verhalten“ vor.

Essential statement by the Highest Federal Administrative Court in Germany:

„ A doctoral degree awarded by fair means can be withdrawn if results were manipulated or obtained by fraud at a later date“

Aus dem Konstanzer Südkurier 31.07.2013

Fraud in Science

- **Joachim Boldt**, a German anaesthesiologist, was regarded a leading scientist in the use of colloids (*Hydroxyethyl starch*) in anaesthesia (*apparently only his own studies reported improvements*)

- 90 of his papers lacked institutional approval („ethics board“) and some contained false data

- was stripped of his professorship (Univ. Gießen), and dismissed from Klinikum Ludwigshafen, and was under criminal investigaton

* More interesting reading about the implications of fraud in clinical research in:
Anesthesiology News ISSUE: APRIL 2013 | VOLUME: 39:4
The Boldt Affair: A Quandary for Meta-Analysts

Jacqui Wise, Boldt: the great pretender *BMJ 2013; 346 doi: https://doi.org/10.1136/bmj.f1738 (Published 19 March 2013)*

Fraud in Science

- **Woo-Suk Hwang** published two widely recognized articles in 2004/05, in which he described how he **achieved generating human stem cells by cloning.**
- In 2006, both articles were retracted and the Korean state attorney accused him of fraud.
- He and six other colleagues were dismissed from their institute, and he was forbidden to engage in any further stem cell research.
- Nevertheless, Woo-Suk Hwang is still performing research in a private institute.

„clonedog“
Snuppy

http://www.spiegel.de/wissenschaft/mensch/skandal-um-hwang-die-selbstzerstoerung-des-klon-helden-a-392166.html

Courtesy Björn Brembs, University of Regensburg

Fraud in Science

- **Diederik Stapel** made up most data in his 2 year research career
- He had to step down 2011 and went into psychiatric treatment
- In 2013, he agreed to 120 hours of social service and to pay a sum equivalent to a 1,5-year salary, thus avoiding further prosecution
- He wrote his memoirs (in Dutch) translated into English (2014)

***Faking Science*: A true story of academic fraud**
Diederik Stapel
Translated by Nicholas J.L. Brown
Nicholas J. L. Brown,
Strasbourg, France
December 14, 2014

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Nachrichten > Wissenschaft > Mensch > Psychologie > Niederlande: Renommierter Psychologe gesteht Fälschungen

Niederlande: Renommierter Psychologe gesteht Fälschungen

Diederik Stapel hat zahlreiche Studien veröffentlicht, die für Schlagzeilen sorgten. Doch nun hat sich herausgestellt: Der niederländische Forscher hat in großem Maßstab Daten gefälscht.

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THEMA
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Mehr auf SPIEGEL ONLINE
Forscherskandal: Heißer Krieg ums Klima (03.05.2010)

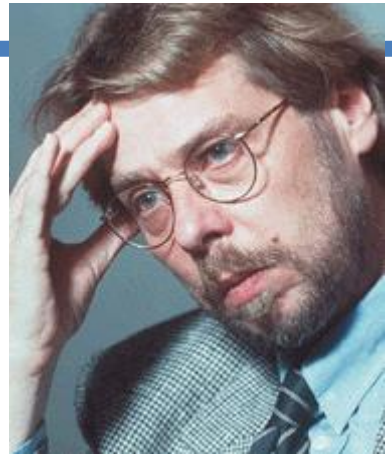
Tilburg University
Diederik Stapel: "Ich habe Daten verändert und Forschung gefälscht."

Hamburg - Diederik Stapel war fleißig in den vergangenen Jahren. Mehr als 150 wissenschaftliche Studien veröffentlichte der niederländische Psychologe seit 2004, einige davon auch in den renommiertesten Fachzeitschriften der Welt. Wie etwa eine Untersuchung, dass Unordnung Vorurteile wachsen lässt, die im April in "Science" erschien.

Doch der Sozialpsychologe hat offensichtlich nur wenige echte Erkenntnisse durch die Forschung gewonnen - tatsächlich ist ein Teil seiner Studien gefälscht, was Stapel inzwischen zugegeben hat.

Courtesy Björn Brembs, University of Regensburg

Fraud in Science



* Oncologist **Friedhelm Herrmann*** (upper right) and his former collaborator **Marion Brach**** (upper left), *working at MDC-Berlin Buch*, were regarded as **exemplary scientists : highly intelligent, very productive and highly honoured**.

* A committee of the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) and the German Cancer Aid (Deutsche Krebshilfe) has published a final report on **counterfeit and false publications of scientists Herrmann and Brach**.

* The committee examined **347 publications** of the two oncologists since 1998. It compared lab protocols with published data and reviewed figures and graphs. **94 of 347 were regarded as „incriminated“. 29 of these publications contained clearly manipulated data and in 64 concrete indications of manipulations were found.**

  * stepped down as Prof. at University of Ulm, today a practising oncologist in München,

  ** stepped down as Prof. at University of Lübeck

(translated from www.Berliner Zeitung.de, and *Nature* **395**, 532-533 (8 October 1998) | doi:10.1038/26817)

Fraud in Science

But in **2004** the following agreement was found:

In the aftermath of a serious fraud scandal in German medical science, one of the main protagonists, **former cancer specialist Friedhelm Herrmann from Ulm University, is to be allowed to keep his professorship and must not publicly be called a forger.**
Last week, the district attorney of Berlin and Professor Herrmann's lawyer reached an agreement that the case will not be taken to court after all.

The accusations date back to 1997 when Herrmann and his former coworker Marion Brach, who were both professors at the University of Lübeck, were accused by a whistleblower in their research group. The whistleblower said they had forged several research papers on haematology, such as the use of cytokines and gene therapy, during their time at the universities in Mainz, Freiburg, and Berlin.
Consequently, Professor Herrmann and Dr Brach left academic medicine. Professor Herrmann is still practising medicine in Munich, whereas Dr Brach, who denied any guilt, left for the United States.
In 2000, a task force of scientists engaged by the Deutsche Forschungsgemeinschaft (the German Research Foundation) concluded that 94 of Professor Herrmann's 347 research papers contained manipulated data (BMJ 2000;321:71). Only 132 publications were cleared of any suspicion of fraud.

However, the foundation, the main funder of German research, as well as other sponsors of Professor Herrmann's scientific work, **failed to find Professor Herrmann guilty of having acquired grants of several hundred thousand euros on the basis of forged scientific results.**
Instead, the district attorney of Berlin and Professor Herrmann's lawyer agreed on **a minor payment of €8000 (£5300;$10 000) and to stop further legal investigation into the case. According to current law, Professor Herrmann's guilt was labelled as negligible, repetition was thought to be unlikely, and the public interest appeared to be small.**

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC381088/

Fraud in Science

* STAP cells (*Stimulus-triggered acquisition of pluripotency*): a technique by subjecting ordinary cells to certain types of stress, such as the application of a bacterial toxin, submersion in a weak acid, or physical squeezing
* Publications by Haruko Obokata:

  *(- Obokata, Haruko; Wakayama, Teruhiko; Sasai, Yoshiki; et al. (2014), "Stimulus-triggered fate conversion of somatic cells into pluripotency**". Nature 505**: 641–647. doi:10.1038/nature12968.*

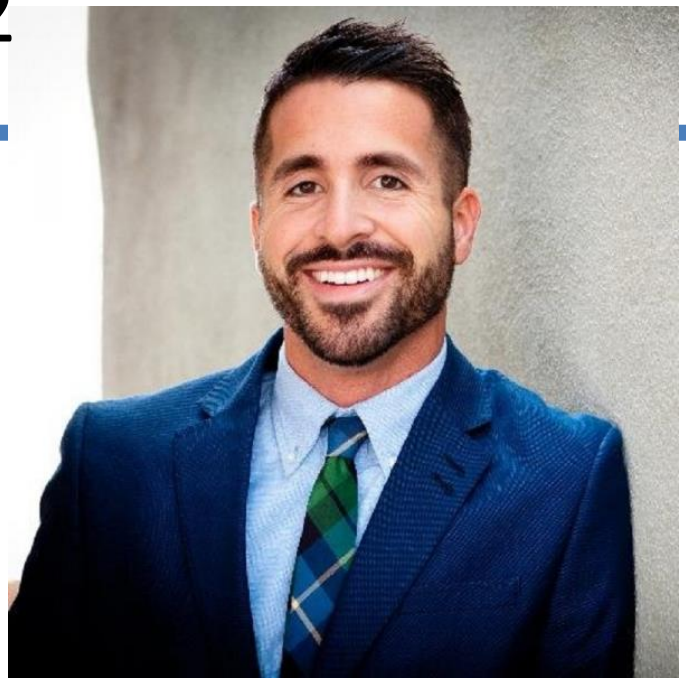
  *- Obokata, Haruko; Sasai, Yoshiki; Niwa, Hitoshi; Vacanti, Charles (30 January 2014). Bidirectional developmental potential in reprogrammed cells with acquired pluripotency **Nature 505**:676–680. doi:10.1038/nature12969)*
* Research was carried out at the Laboratory for Cellular Reprogramming at RIKEN Center for Developmental Biology
* Results were largely fabricated by H. Obokata, a very young research scientist
* **The responsible director, Yoshiki Sasai, a director of RIKEN institute, committed suicide on 5 August 2014**

Haruko Obokata

Yoshiki Sasai

https://www.nature.com/news/stem-cell-pioneer-blamed-media-bashing-in-suicide-note-1.15715

2



Michael LaCour, PhD-student of Political Science, UCLA,

* It was claimed that when pollsters disclose their own sexual orientation, this could quickly change opinions of people
* The claim was that this significantly changed people‘s opinion on gay marriage
* He also claimed to have payed every participant 100 $, and to have received grants from very honourable institutions

RETRACTED 28 MAY 2015;
EDITORIAL EXPRESSION OF CONCERN 20 MAY 2015; SEE LAST PAGES

In addition to the C1/C2 polymorphism in human transferrin, position 589 toggles exclusively between proline and serine across the primate lineage (Fig. 2E and fig. S13), a potential signature of antagonistic pleiotropy at a largely constrained position, as observed for other host-pathogen interfaces (*7*). Previous work has also implicated the C2 transferrin variant as a risk factor for disorders involving iron metabolism, including Alzheimer's disease; however, these associations remain controversial and appear dependent on the populations tested and interactions with other susceptibility loci (*25*, *26*). Our findings provide a functional basis for human transferrin variation and establish an important role for nutritional immunity in recent human evolution.

Although canonical innate immunity factors have been appreciated as nodes of host-virus evolution, our work demonstrates that nutritional immunity has played a fundamental role in the survival of primate populations challenged by bacterial pathogens. *H. influenzae* and *N. meningitidis* remain a major source of morbidity and mortality in regions where vaccine coverage is poor (*27*, *28*) and drug-resistant *N. gonorrhoeae* is developing into an urgent public health threat (*29*). By illuminating the battle for iron as a major driving force of host-pathogen evolution, from 40 million years of primate divergence to emerging human epidemics today, our studies reveal new reservoirs of genetic resistance to infectious diseases.

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SUPPLEMENTARY MATERIALS

www.sciencemag.org/content/346/6215/1362/suppl/DC1
Materials and Methods
Figs. S1 to S13
Tables S1 to S18
Movie S1
References (*30*–*36*)

29 July 2014; accepted 14 November 2014
10.1126/science.1259329

POLITICAL SCIENCE

When contact changes minds: An experiment on transmission of support for gay equality

Michael J. LaCour[1] and Donald P. Green[2]

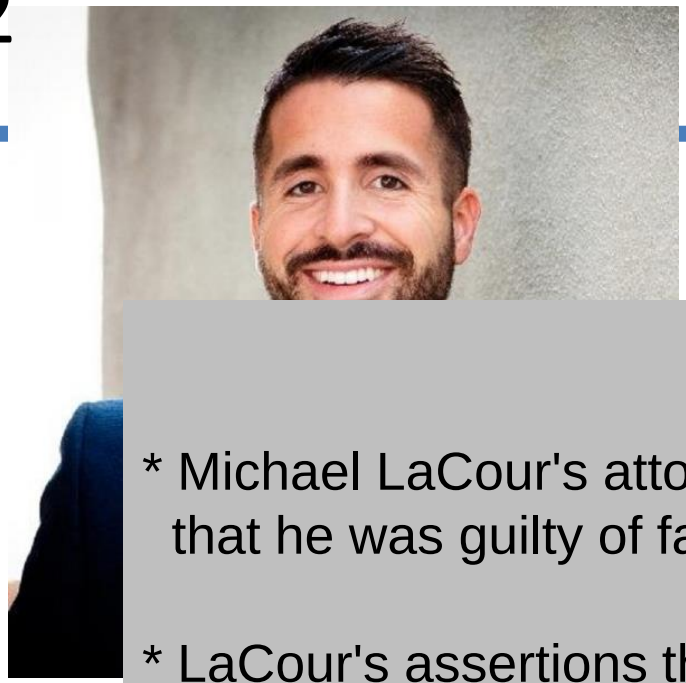
Can a single conversation change minds on divisive social issues, such as same-sex marriage? A randomized placebo-controlled trial assessed whether gay (*n* = 22) or straight (*n* = 19) messengers were effective at encouraging voters (*n* = 972) to support same-sex marriage and whether attitude change persisted and spread to others in voters' social networks. The results, measured by an unrelated panel survey, show that both gay and straight canvassers produced large effects initially, but only gay canvassers' effects persisted in 3-week, 6-week, and 9-month follow-ups. We also find strong evidence of within-household transmission of opinion change, but only in the wake of conversations with gay canvassers. Contact with gay canvassers further caused substantial change in the ratings of gay men and lesbians more generally. These large, persistent, and contagious effects were confirmed by a follow-up experiment. Contact with minorities coupled with discussion of issues pertinent to them is capable of producing a cascade of opinion change.

Foremost among theories of prejudice reduction (*1*) is the contact hypothesis (*2*), which contends that outgroup hostility diminishes when people from different groups interact with one another. Although contact is credited with reducing prejudice toward a wide array of outgroups (*3*), in practice it is often difficult to facilitate intergroup contact of sufficient duration to dispel negative stereotypes and build empathy. For this reason, research attention has recently focused on alternative interventions that may be deployed in a more compressed time frame. Examples include brief personal contact with outgroup members during the course of a conversation (*4*) and the "extended contact" that occurs when one learns that a close friend has experienced positive contact with an outgroup (*5*). The question is whether brief or indirect contact is sufficient to produce meaningful and enduring attitude change. Recent literature reviews have been tentative on this point, noting the lack of randomized experiments that track attitudes months after the intervention (*6*).

Our theoretical contribution is to introduce the distinction between active and passive contact, which are posited to produce different effects in the context of a brief intergroup encounter. Whereas passive contact involves personal exposure to an outgroup member (e.g., through collaborative activity), active contact involves, in addition, communication about an issue that divides the two groups (e.g., discussion of recent communal violence). The effects of active contact doubtless depend on whether the conversation is respectful or accusatory, but in principle, active contact has the potential to both reduce hostility toward outgroups and to change attitudes on divisive issues. Our empirical contribution is the first field-based experimental demonstration of persistent attitude change in the wake of active

[1]Department of Political Science, University of California, Los Angeles (UCLA), Los Angeles, CA, USA. [2]Department of Political Science, Columbia University, New York, NY, USA.

2 ….and even more recent:



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In addition to the C1/C2 polymorphism in human transferrin, position 589 toggles exclusively between proline and serine across the primate lineage (Fig. 2E and fig. S13), a potential signature of antagonistic pleiotropy at a largely constrained position, as observed for other host-pathogen interfaces (*7*). Previous work has also implicated the C2 transferrin variant as a risk factor for disorders involving iron metabolism, including Alzheimer's disease; however, these associations remain controversial and appear dependent on the populations tested and interactions with other susceptibility loci (*25*, *26*). Our findings provide a

24. B. J. Shapiro, L. A. David, J. Friedman, E. J. Alm, . *Trends Microbiol.* **17**, 196–204 (2009).
25. K. Namekata *et al.*, *Hum. Genet.* **101**, 126–129 (1997).
26. Y. Wang *et al.*, *Can. J. Neurol. Sci.* **40**, 691–697 (2013).
27. K. L. O'Brien *et al.*, *Lancet* **374**, 893–902 (2009).
28. S. A. Halperin *et al.*, *Vaccine* **30** (suppl. 2), B26–B36 (2012).
29. T. Frieden, *Antibiotic Resistance Threats in the United States 2013* (Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, 2013).

ACKNOWLEDGMENTS

We thank M. Mulvey and members of the Mulvey laboratory for assistance with bacterial genetics and helpful discussions; V. Chandrasekaran and W. Sundquist for assistance with baculoviral protein purification; J. Kaplan and D. Ward for helpful advice

discussions. J. Iwasa created the molecular animation of transferrin and TbpA evolution. We are grateful to N. Barber, H. Malik, S. Sawyer, N. Phadnis, and members of the Elde laboratory for comments on the manuscript. GenBank accession numbers of transferrin and TbpA variants are KM972645 to KM972665. Also see the supplementary materials. This work is supported by awards from the Pew Charitable Trusts and NIH to N.C.E. (GM090042) and M.F.B. (1F32GM108288). N.C.E. is a Pew Scholar in the Biomedical Sciences and Mario R. Capecchi Endowed Chair in Genetics.

SUPPLEMENTARY MATERIALS

www.sciencemag.org/content/346/6215/1362/suppl/DC1
Materials and Methods
Figs. S1 to S13
Tables S1 to S18

* Michael LaCour's attorney has confirmed to Science that he was guilty of fabricating data.

* LaCour's assertions that survey respondents were offered cash incentives were fake and none of the organizations that were listed as the sponsors for the study were funding the research.

* It was
disclo
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of pe
* The claim was that this significantly changed people's opinion on gay marriage

15. M. L. Zarantonelli *et al.*, *Infect. Immun.* **75**, 5609–5614 (2007).
16. C. Calmettes, J. Alcantara, R.-H. Yu, A. B. Schryvers, T. F. Moraes, *Nat. Struct. Mol. Biol.* **19**, 358–360 (2012).
17. C. N. Cornelissen, G. D. Biswas, P. F. Sparling, *J. Bacteriol.* **175**, 2448–2450 (1993).
18. A. B. Schryvers, B. C. Lee, *Can. J. Microbiol.* **35**, 409–415 (1989).
19. S. D. Gray-Owen, A. B. Schryvers, *Microb. Pathog.* **14**, 389–398 (1993).
20. B. C. Lee, A. B. Schryvers, *Mol. Microbiol.* **2**, 827–829 (1988).
21. P. Kühnl, W. Spielmann, *Hum. Genet.* **43**, 91–95 (1978).
22. P. Zatta *et al.*, *Biochimica et Biophysica Acta (BBA) Molecular Basis of Disease* **1741**, 264–270 (2005).
23. M. Emerman, H. S. Malik, *PLOS Biol.* **8**, e1000301 (2010).

cult to facilitate intergroup contact of sufficient duration to dispel negative stereotypes and build empathy. For this reason, research attention has recently focused on alternative interventions that may be deployed in a more compressed time frame. Examples include brief personal contact with outgroup members during the course of a conversation (*4*) and the "extended contact" that occurs when one learns that a close friend has experienced positive contact with an outgroup (*5*). The question is whether brief or indirect con-

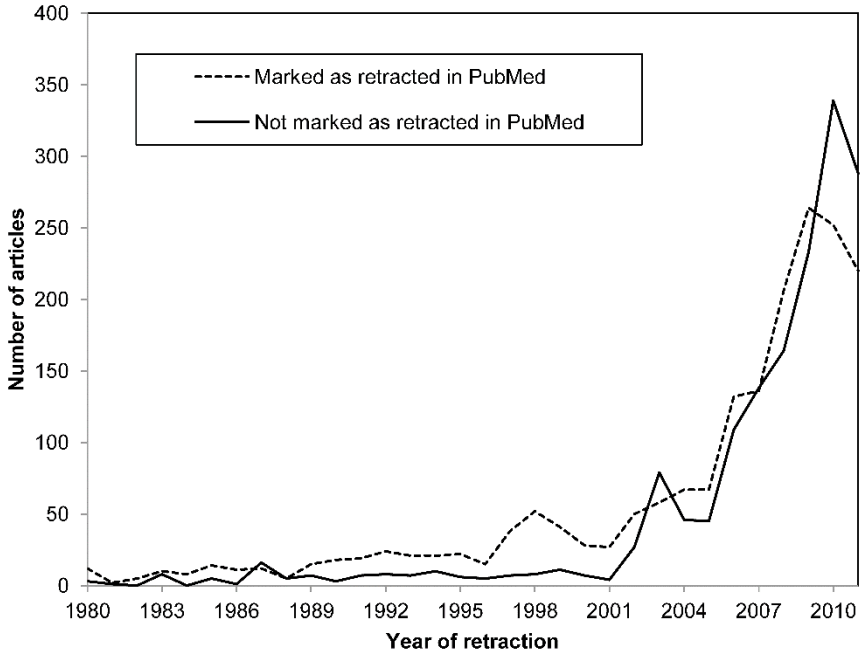
[1]Department of Political Science, University of California, Los Angeles (UCLA), Los Angeles, CA, USA. [2]Department of Political Science, Columbia University, New York, NY, USA.

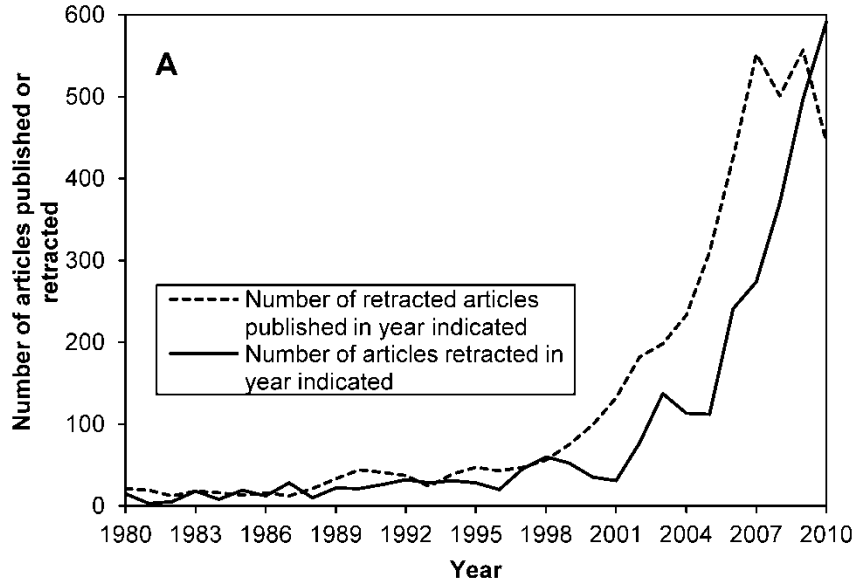
tact, which are posited to produce different effects in the context of a brief intergroup encounter. Whereas passive contact involves personal exposure to an outgroup member (e.g., through collaborative activity), active contact involves, in addition, communication about an issue that divides the two groups (e.g., discussion of recent communal violence). The effects of active contact doubtless depend on whether the conversation is respectful or accusatory, but in principle, active contact has the potential to both reduce hostility toward outgroups and to change attitudes on divisive issues. Our empirical contribution is the first field-based experimental demonstration of persistent attitude change in the wake of active

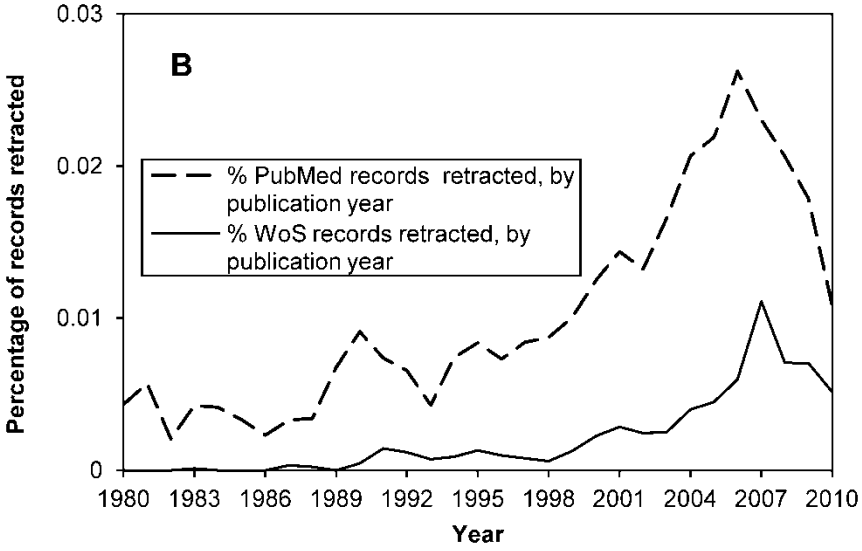
…..this list could easily be continued!

From New York Times (nytimes.com)

2 An increasing number of retracted papers

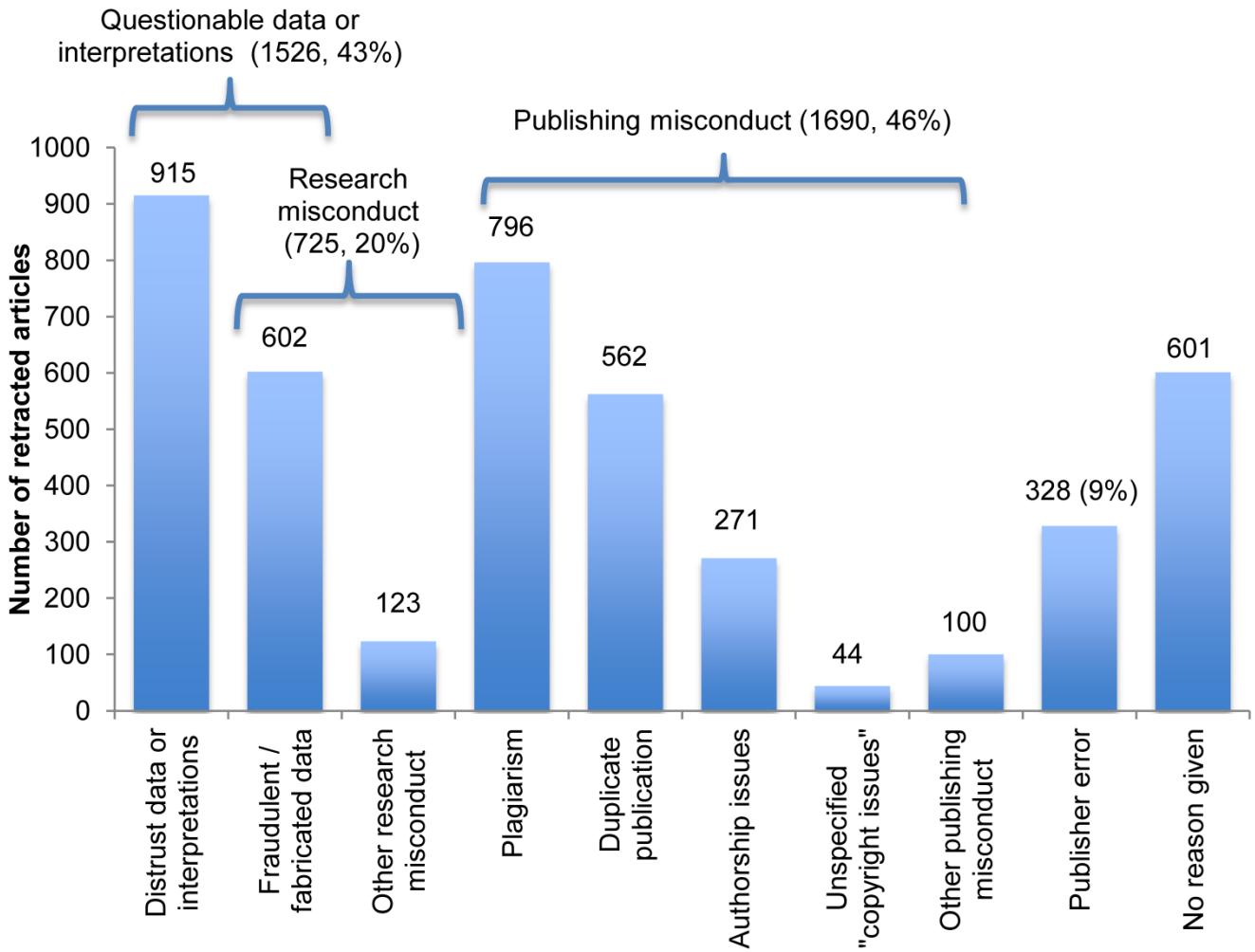






From:
Grieneisen and Zhang, PLoS ONE 2012

Reasons for paper retractions



From: Grieneisen and Zhang,
A Comprehensive Survey of Retracted Articles from the Scholarly Literature, PLoS ONE, October 24, 2012
DOI: 10.1371/journal.pone.0044118

2 Which journals are affected by retractions ?

Journal title abbreviation	Number of retracted articles	WoS records since 1980	Percent of articles retracted
Acta Crystallogr E	123	31,152	0.39[1]
Science	73	76,801	0.09
PNAS	73	85,064	0.08
J Biol Chem	59	130,667	0.04
Gene Expr Patterns	49	871	5.62[2]
Nature	47	97,384	0.05
Anesth Analg	40	23,632	0.17[1]
Biochem Biophys Res Commun	36	57,026	0.06
J Immunol	33	50,451	0.06
Blood	29	123,171	0.02
J Hazard Mater	25	10,678	0.16[3]
J Am Chem Soc	24	76,644	0.03
Cell	23	14,718	0.16
J Clin Invest	22	16,830	0.13
Tissue Eng Regen Med	20	532	3.76[4]
N Engl J Med	18	54,555	0.04
Hear Res	16	5,362	0.30[5]
Appl Phys Lett	15	83,838	0.02
EMBO J	15	16,060	0.09
FEBS Lett	15	38,101	0.04
Infect Immun	15	24,306	0.06
Mol Cell Biol	15	20,466	0.07

[1]Two authors, H. Zhong and T. Liu, accounted for most of the retractions from *Acta Crystallogr E*, as did Joachim Boldt for *Anesth Analg*.
[2]All 49 articles from *Gene Express Pattern* were retracted due to a publisher error in which an entire issue of journal *Mech Dev* was accidentally published as *Gene Expr Patterns*. This journal was not covered in its entirety in Web of Science, so the count of 871 "records since 1980" is from PubMed.
[3]17 of 25 *J Hazard Mater* retractions were authored by Pattium Chiranjeevi.
[4]The count of 532 articles since 1980 is an underestimate since WoS only includes articles for volume 4 onward for this journal, and it is not covered by PubMed. This is a Korean-language journal to which we have no access, so the reason for this large percentage is not known.
[5]12 of the 16 retractions for *Hear Res* were articles accidentally posted online on two different dates (2009 Oct 8 and 2010 Jan 30), indicating two isolated editorial errors.
doi:10.1371/journal.pone.0044118.t003

WoS =Web of Science

Grieneisen and Zhang, PLoS ONE 2012

2 Are there countries with high retraction ratios ?

Table 2. Ratio of retractions for fraud to total number of papers published for selected countries.

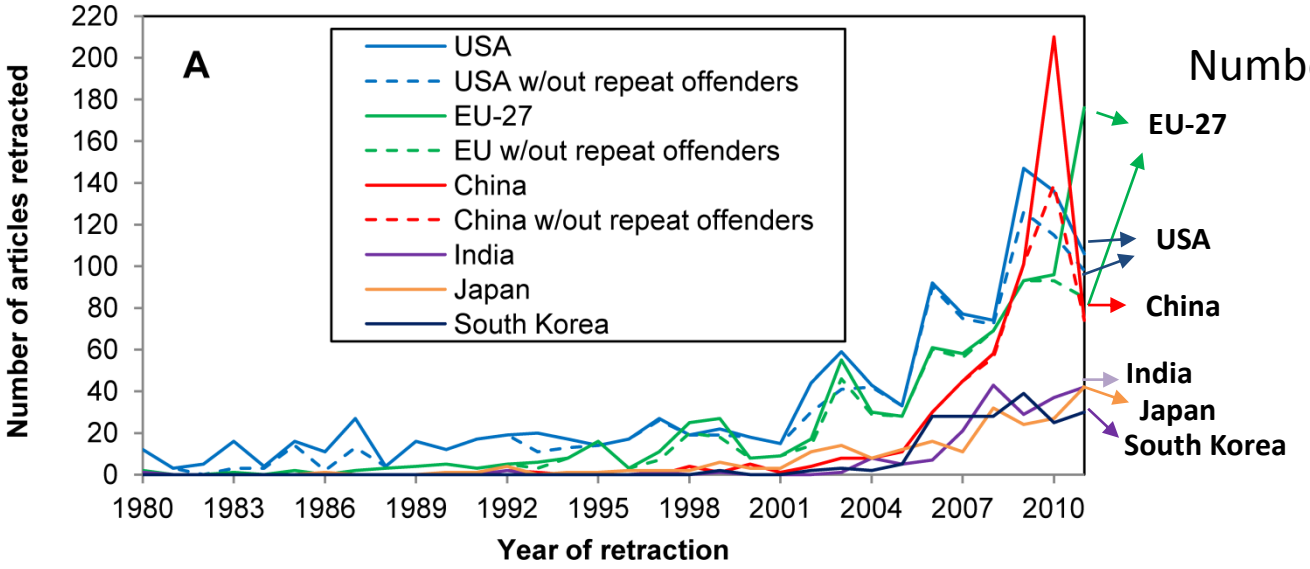
Country	Fraudulent Retractions 2000–2010	Number of Papers 2010 (Thousands)	Ratio of Fraudulent to Total Papers (Thousands)
USA	84	140	0.6
China	20	28	0.71
Japan	18	25	0.72
India	17	13	1.31
UK	7	41	0.17
Turkey	2	11	0.18
Iran	1	5	0.2
All Asian	63	94	0.67

doi:10.1371/journal.pmed.1001315.t002

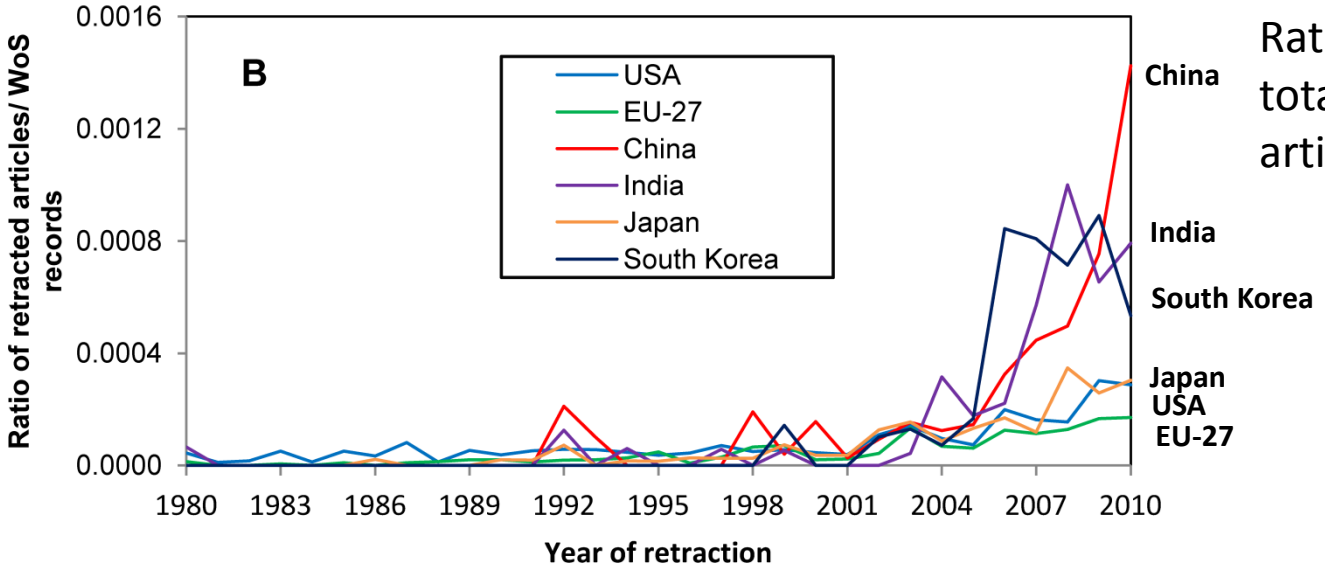
Ana J, Koehlmoos T, Smith R, Yan LL (2013) Research Misconduct in Low- and Middle-Income Countries. PLoS Med 10(3): e1001315. doi:10.1371/journal.pmed.1001315
http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1001315

PLOS | MEDICINE

Are there countries with high retraction ratios ?



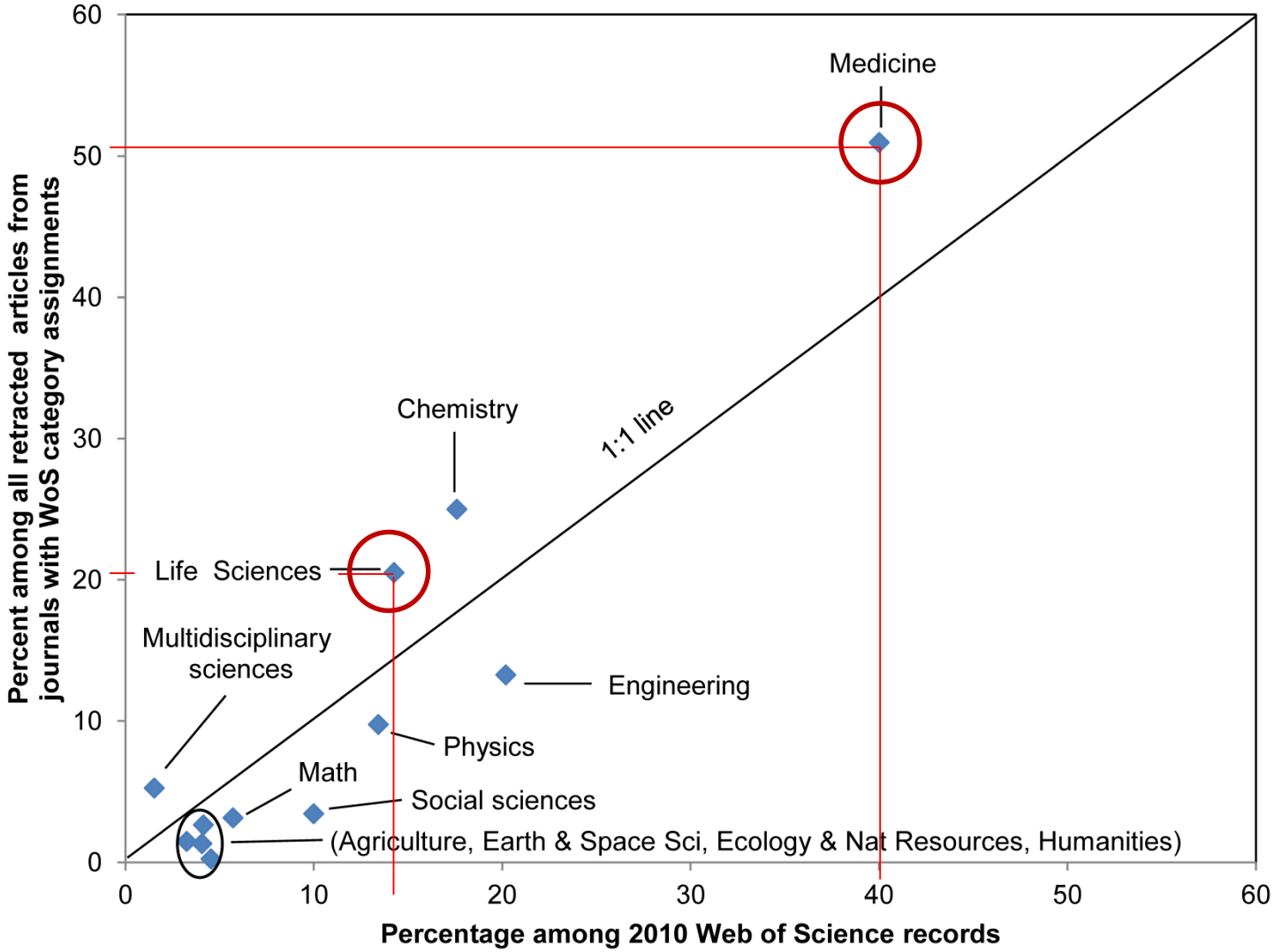
Number of articles retracted



Ratio between retracted and total number of published articles

From:
Grieneisen and Zhang, PLoS ONE 2012

2 Are there research fields with high retraction ratios ?



From:
Grieneisen and Zhang,
PLoS ONE 2012

* Approx. 14% of all published articles in 2010 were in the field of „Life Sciences“, but 21% of all retracted papers were in this field, thus it is over-represented
* Similar over-representation of the field Medicine

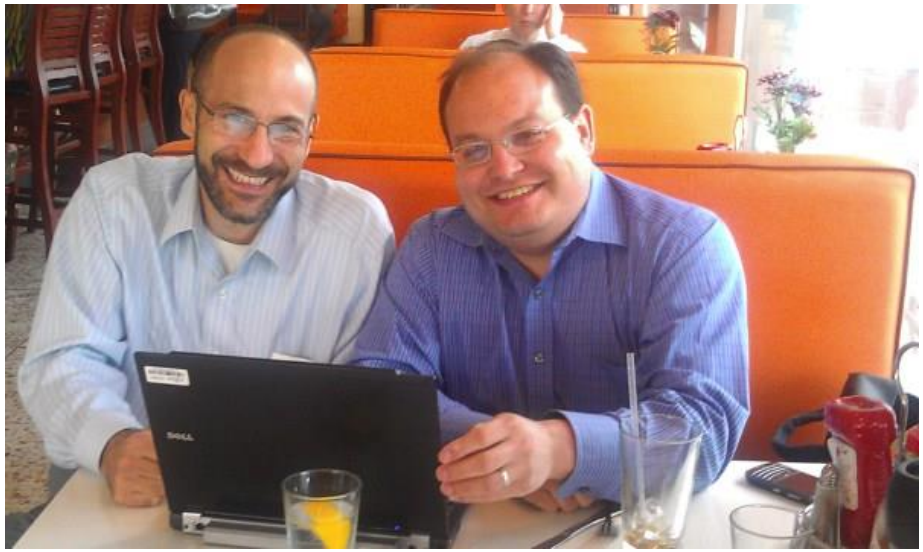
An interesting web-site (blog):

http://retractionwatch.com/

Retraction Watch

Tracking retractions as a window into the scientific process

Founded 2010 by Ivan Oransky and Adam Marcus



The Retraction Watch Leaderboard

Yoshitaka Fujii (total retractions: 183) Sources: Final report of investigating committee, our reporting
Joachim Boldt (94) Sources: Editors in chief statement, additional coverage
Peter Chen (60) Source: SAGE
Diederik Stapel (55) Source: Our cataloging
Adrian Maxim (48) Source: IEEE database
Hua Zhong (41) Source: Journal
Shigeaki Kato (36) Source: Our cataloging
Hendrik Schön (36) Sources: PubMed and Thomson Scientific
Hyung-In Moon (35) Source: Our cataloging
James Hunton (32.5, counting partial retraction as half) Source: Our cataloging
Naoki Mori (32) Source: PubMed, our cataloging
Tao Liu: (29) Source: Journal
Gideon Goldstein (26)
Scott Reuben (25)
Gilson Khang (22) Sources: WebCitation.org, WebCitation.org, journal
Friedhelm Herrmann (21)
John Darsee (17)
Wataru Matsuyama (17)
Alirio Melendez (17)
Robert Slutsky (17)
Ulrich Lichtenthaler (16)
Khalid Zaman (16)
Pattium Chiranjeevi (15)
Marion A. Brach (14)
Silvia Bulfone-Paus (13)
Suresh Radhakrishnan (13)
Noriyuki Takai (13)
Jesus Angel Lemus (13)
Jon Sudbø (12) Anil Potti (11.5)

We note that
all but two of the top 30 are men,
which agrees with the general findings of a 2013 paper suggesting that
men are more likely to commit fraud.

(F. C. Fang, J. W. Bennett, and A. Casadevall, mBio 4:1-3, 2013), and see (Kaatz et al. mBio 4 (2), 2013)

2 The top "repeat offenders" are collectively responsible for 52% of the world's retractions due to alleged research misconduct

Researcher	Retraction years	Country	Field of study	Number of retractions	Justification given for retractions
Joachim Boldt[1]	2010–2011	Germany	Anesthesiology	88	Lack of IRB approval
Adrian Maxim[2]	2007	USA	Electrical engineering	48	Alleged data fraud and fictitious co-authors
H. Zhong[3]	2010	China	Chemistry	43	Alleged data fraud
Jon Hendrick Schön[4]	2002–2004	USA	Physics	33	Alleged data fraud
T. Liu[3]	2010	China	Chemistry	29	Alleged data fraud
Robert A. Slutsky[4]	1985–1987	USA	Cardiology	25	Alleged data fraud
Scott S. Reuben[4]	2009–2010	USA	Anesthesiology	24	Alleged data fraud
Naoki Mori[5]	2010–2011	Japan	Oncology	23	Alleged data fraud
Friedhelm Herrmann[6]	1997–2003	Germany	Oncology	22	Alleged data fraud
John R. Darsee[4]	1982–1984	USA	Cardiology	19	Alleged data fraud
Pattium Chiranjeevi[7]	2008	India	Chemistry	19	Plagiarism
Wataru Matsuyama[5]	2007–2010	Japan	Immunology	17	Alleged data fraud
Suresh Radhakrishnan[8]	2010	USA	Immunology	15	Alleged data fraud
M. Quik, G. Goldstein and collaborators	1993–1994	Canada	Physiology	15	Artifact (contamination)
Jon Sudbø[9]	2006–2007	Finland	Oncology	14	Alleged data fraud

These cases distort figures for individual journals, years, countries and subdisciplines, and are distributed throughout North America, Europe and Asia. Nine of the 15 are in medical fields.

[1]Excluding one 2010 retraction, the Boldt case accounts for 87 (49%) of the 176 retractions for the entire EU-27 thus far in 2011.

[2]According to the IEEExplore database, this author has allegedly fabricated data in 39 publications and co-authors of 14 additional publications.

[3]The 72 retractions of these two authors represent 34% of China's 210 retractions for 2010 and 8.9% of all 811 retractions for China.

[4]These four authors account for 101 (7.5%) of all 1,355 USA retractions. It is noteworthy that Dr. Schön's retractions include 10 articles from *Science* and 7 from *Nature*.

[5]These two authors account for 40 (16%) of all 263 retractions for Japan.

[7]This author accounts for 19 (6.8%) of all 280 retractions for India. Despite only 19 retractions, an institutional review alleged "plagiarizing and/or falsifying more than 70 research papers" [34] by this author.

[1–6,8–9]Including 39 of Dr. Maxim's articles with allegedly fabricated data, these 13 authors account for 391 (54%) of the world total of 725 retractions due to alleged research misconduct.

doi:10.1371/journal.pone.0044118.t004

From: Grieneisen and Zhang, PLoS ONE 2012

We conduct research
with integrity !

From a brochure of
ETH (*Eidgenössische
Technische Hochschule*) Zürich

Good Scientific Practice

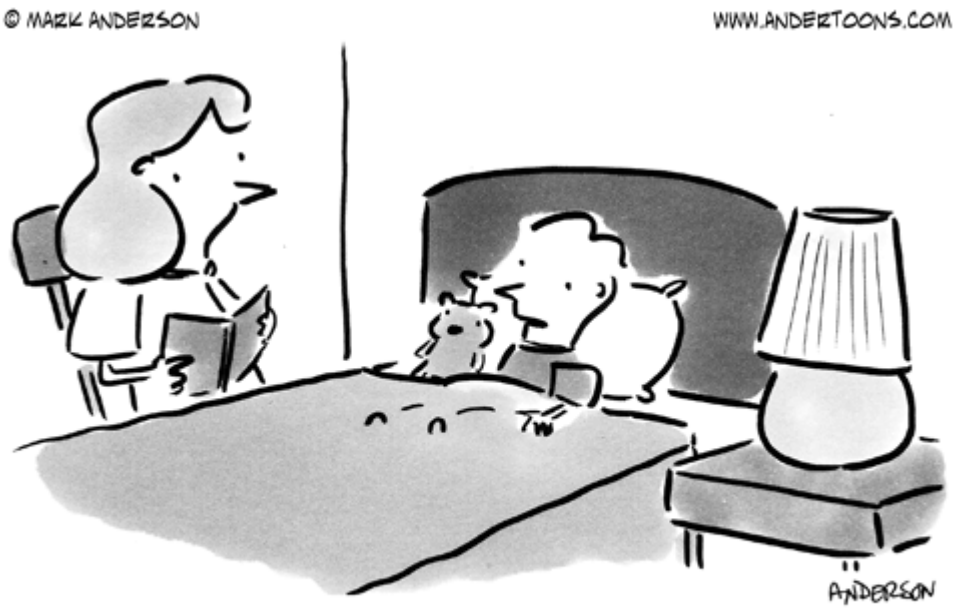
Many granting agencies and research funding institutions in the (whole?) world have formulated the „**rules of good scientific practice**“ as the conduct of science rests on **basic principles valid in all** (?, most) **countries** and in **all scientific disciplines**.

Good Scientific Practice

The most important conduct,
actually not applying to science alone
but also to all aspects of life, is

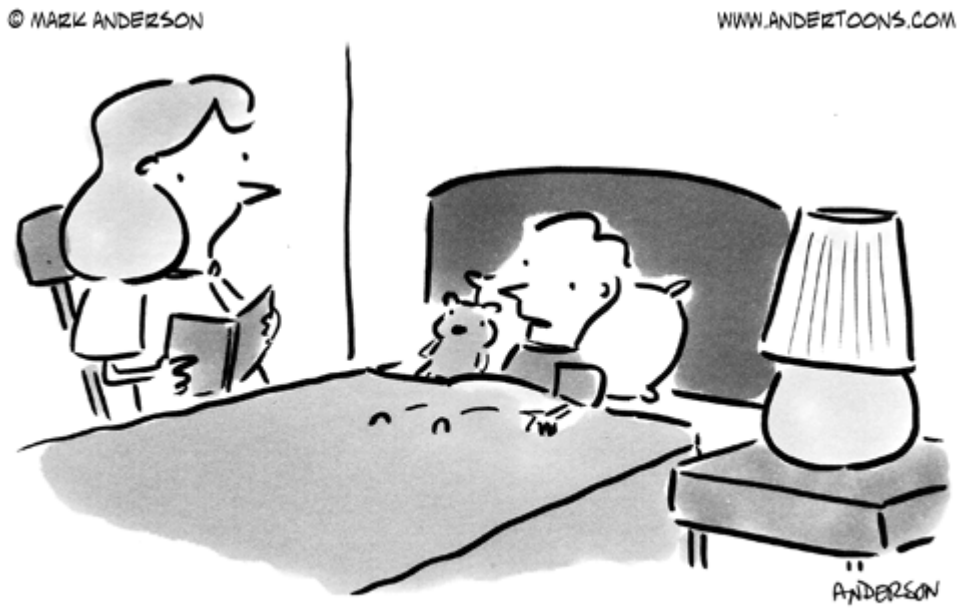
HONESTY

HONESTY



"Let's say honesty isn't going to work.
What's the second best policy?"

HONESTY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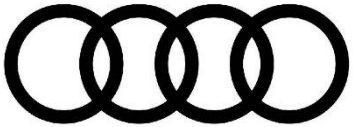
"Let's say honesty isn't going to work.
What's the second best policy?"




BMW

HONESTY

* The first rule of good scientific practice is **honesty towards oneself and towards others***.

- **Honesty** is both an ***ethical principle*** and the ***basis for the rules***, the details of which differ by discipline of professional conduct in science, i.e. of good scientific practice.

- **Conveying the principle of honesty to students and to young scientists and scholars is one of the principal missions of universities*.**

- **Safeguarding its observance in practice** is one of the principal tasks of the self-government of science *(and, for example, of supervisors).*

..and the fundamental aspects of honesty should have already been taught within the family and at school!

The opposite is

DISHONESTY

DISHONESTY

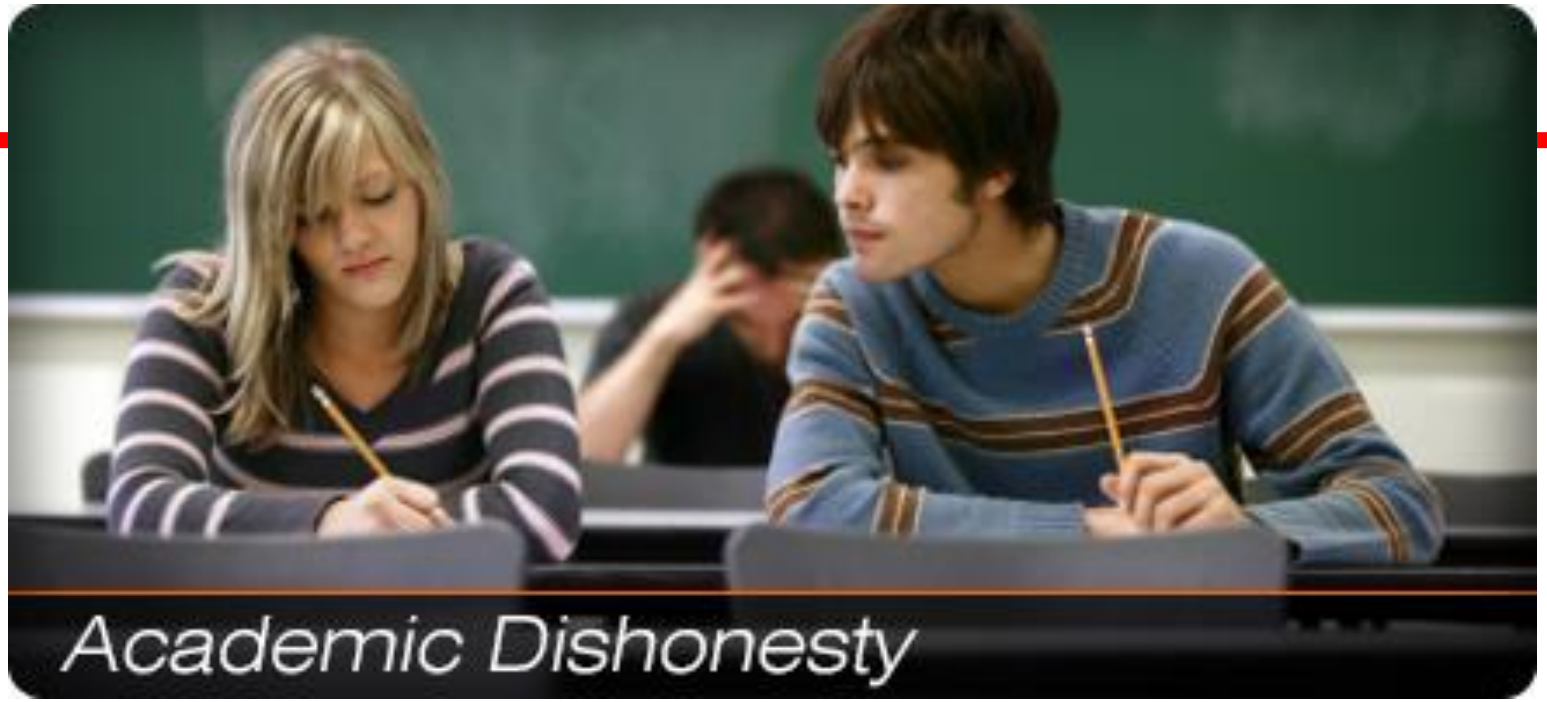
*** Dishonesty, in contrast to error***,
not only ***fundamentally contradicts***
the principles and the essence of scientific work,
it is also a **grave danger to science itself**.

- It can **undermine public confidence in science**, and it may destroy **the confidence of scientists in each other** without which successful scientific work is impossible.

- It will profoundly damage **the willingness of the public to invest** (money) into **scientific research**.

* "**Errare humanum est, sed in errare perseverare diabolicum**“,
attributed to Seneca which translates to:
"**To err is human, but to persist in error is diabolical**."

3 ……it actually starts early!



http://www.osuokc.edu/arts/dishonesty.aspx

Rules of good scientific practice

* shall include **principles** for the following matters:
  - **in general,** and
  - **specified for individual disciplines** ***(****such as medicine, for example)*

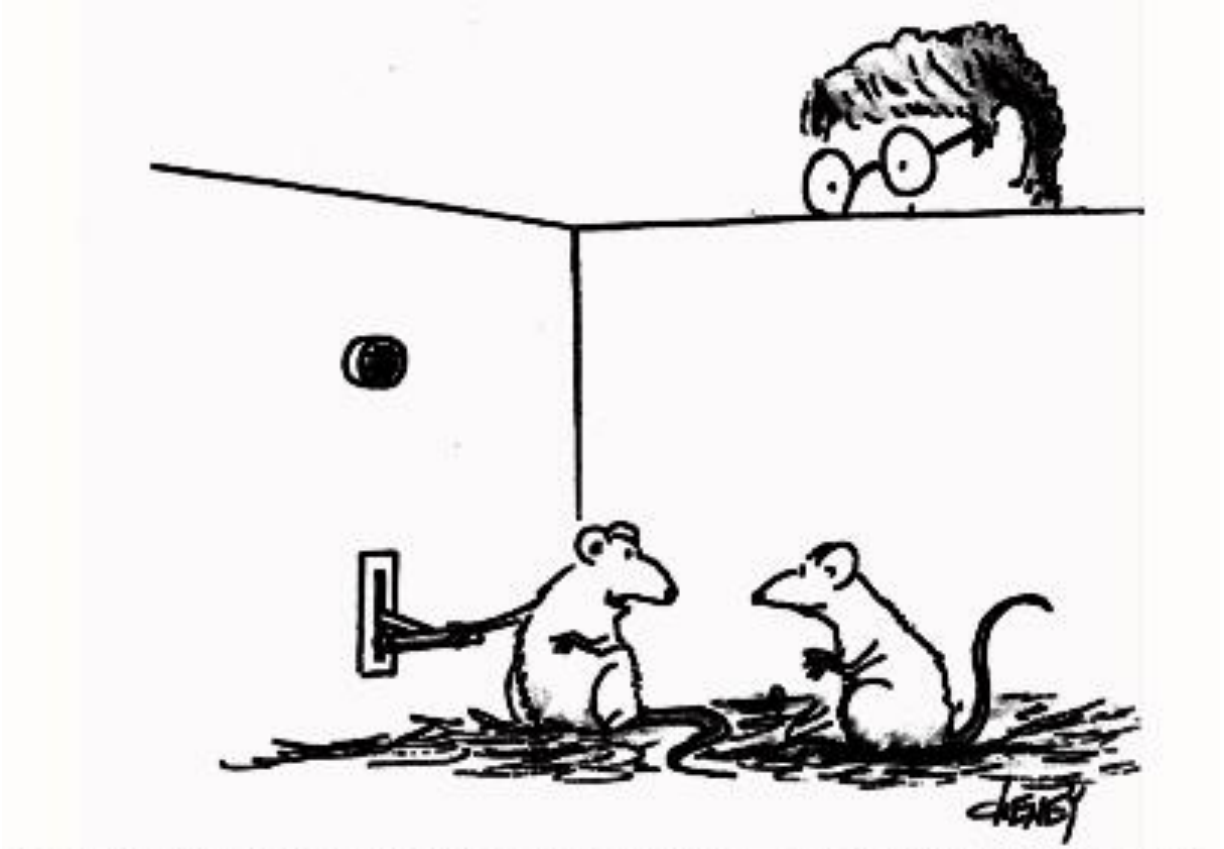
* **fundamentals of scientific work, such as:**
  - **observing professional standards** ***(„lege artis“),***
    * *many doctoral degree regulations contain a chapter on specific rules to work in honesty*
    * *MDs have own standards, such as the Hippocratic oath*

  - **documenting results (complete documentation for 10 years),**

    (for example:
    * *keeping* ***lab protocols, lab books, daily excel sheets*** *etc. (****original data*** *have to be stored for* ***10 years****), data stored on servers must be available*
    * ***all experiments have to be documented*** on a day-to-day basis
    * *making original data available to others (uploading on accessible servers)*

Rules of good scientific practice

- consistently questioning one's own findings



teddysratlab.blogspot.com

Rules of good scientific practice

- **practising strict honesty with regard to the contributions of partners, competitors, and predecessors,**
  (previous work has to be reckognized and cited; an idea which is not yours has to be attributed to the one who stated it first)

- **cooperation and leadership responsibility in working groups**
  (regular meetings with students, supervising the course of a thesis)

Examples of misconduct: data handling

- **to present false or forged data in publications, application forms or grant proposals**

- **inventing data**

  *(or as in a recent application for a Collaborative Research Unit, SFB, Sonder-forschungsbereich) to the DFG to **invent publications** in high-impact journals)*

- either **not to mention** „unwanted“ data that will not fit into the desired results, or **to select** the desired data from all gained data

- **to manipulate results** fitting them to the desired outcome, for example,

  ** to erase unwanted action potentials,*
  ** to increase the spike size,*
  ** to make an immunostaining more intense,*
  ** to manipulate the control experiment such that it has the desired outcome*
  ** to keep the results of an experiment unmentioned that does not fit your conclusions*

Examples of misconduct: data handling

- to deliberately use **false statistical methods**

- to draw **false conclusions**

  (for example based upon unpublished experiments that were not performed yet but appear „plausible“)

Examples of misconduct: plagiarism

- **to copy data or results from others and to keep the source unmentioned (Plagiarism)**

* When the same wording of a publication is used, it should be indicated as follows:

  Pflüger and Duch (2011) concluded: *„that despite the enormous evolutionary distance between insects and vertebrates including humans, the behavioral "key" contexts of the action of biogenic amines appear to be similar."*

* **Self-plagiarism**, i.e. if one uses the same sentences in several of one's own publications, may perhaps be a matter of „bad style" but, for example, in the Materials and Techniques chapter may be difficult to avoid. Cannot be regarded as „plagiarism" in the strict sense.

* More useful infos on plagiarism: http://www.osuokc.edu/arts/dishonesty.aspx

Other examples of misconduct: plagiarism

* The problem of **plagiarism** is **widespread** and students have to be made aware of these problems.

* **After the case of science-minister Annette Schavan and the accusation of plagiarism in her PhD-thesis, the University of Düsseldorf was heaviliy criticised, unconfoundedly by the way, for handling the case by most respected research-institutions among them the German Research Foundation (*DFG*) or the Max Planck Society (*MPG*)**

* **„Double standards“** have to be avoided (*even if Annette Schavan undoubtedly was a very successful and a respected science-minister, and also was representing Ulm in the Parliament, Bundestag, from 2005 to 2014*).

  Therefore my opinion:

  „Si tacuisses“ (*latin meaning: DFG and MPG had better remained silent*)

Other examples of misconduct: plagiarism

* respect Copyright laws
  (this may be a very tricky issue)

* When using a figure from an original publication unmodified, a copyright-permission by the publisher or author is necessary

3 Other examples of misconduct: steal data and ideas

- **to steal ideas from others (important for reviewers and peers)**

* reviewers or peers should better declare a conflict of interest, if they are „in doubt“
  (- for example a common complaint is that a paper is submitted and the review process takes unusually long until a similar paper from different authors appears in a different or even the same journal.
  - Of course, difficult to prove)

* reviews are undertaken with confidentiality and should not be revealed to third parties (*in particular, if these are your competitors!)*

*** knowledge gained in this way should not be used to betray authors**

3 Other examples of misconduct: honorary authorship

- **to accept „honorary“ authorship although no own contribution was made**

* honorary authorship cannot be a „favour“ to somebody

* an author or a co-author of a scientific publication should have made a substantial contribution (*many journals want the kind of contribution disclosed*)

3 Other examples of misconduct: false interpretations

- to deliberately make false interpretations of data published by others

* In particular, when in a grant application data from others are knowingly interpreted wrongly to make the own suggested experiments appear „more justified“.

* To use in a grant application a „red herring“-argument to make your application more juicy although everything is already clear from the results of previous authors.

3 Other examples of misconduct: unauthorized data use

- to use the unpublished data of others without their consent

* This is not uncommon and history of science is full of examples:

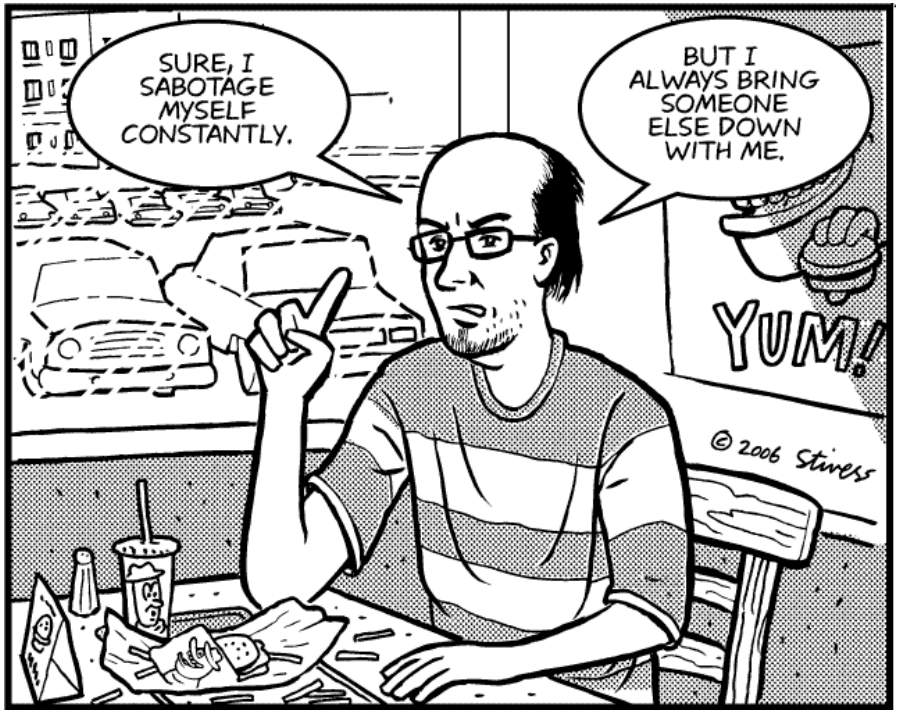
- the X-ray diffraction images of DNA by Rosalind Franklin (1920-1958) were shown to James Watson without her approval or consent.

- the discoveries of the fundamental principles of action potentials surround many similar stories (see *Galvani's Spark: The story of the Nerve Impuls, by Alan McComas, Oxford University Press, 2011*).

- often the victims were women scientists

3 Other examples of misconduct: sabotage of experiments

- **to sabotage the experiments of others**
  (for example, your competitors)



3 Other examples of misconduct: unlawful experiments

- to perform experiments that are forbidden by the laws of your country

(there are laws that regulate, for example, stem cell research, animal experimentation, the use of genetically modified organisms etc.*

(for example: DIRECTIVE 2010/63/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 September 2010 on the protection of animals used for scientific purposes)

** these laws differ in many countries*)

* a good and general guide line for experiments on animals:

3 R's: Reduction, Refinement, Replacement*

(not always possible, in particular in studies of the whole system)*

3 Other examples of misconduct: keep silent

to know about the forging of data by others and keep silent about it

* many universities or grant giving agencies (including DFG) have so-called „**ombudspersons***“ where one can get advice (see also **„Whistleblowing*“**)

* An **ombudsperson** or **public advocate** is usually appointed by the respective agency but with a significant degree of independence, who is representing the interests of the public by investigating and addressing complaints of maladministration or a violation of rights.

** A **whistleblower** (**whistle-blower** or **whistle blower**) is a person who exposes misconduct, alleged dishonesty or illegal activity occurring in an organization. The alleged misconduct may be classified in many ways; for example, a violation of a law, rule, regulation and/or a direct threat to public interest, such as fraud, health and safety violations, mismanagement and corruption.

(From Wikipedia)

Further information

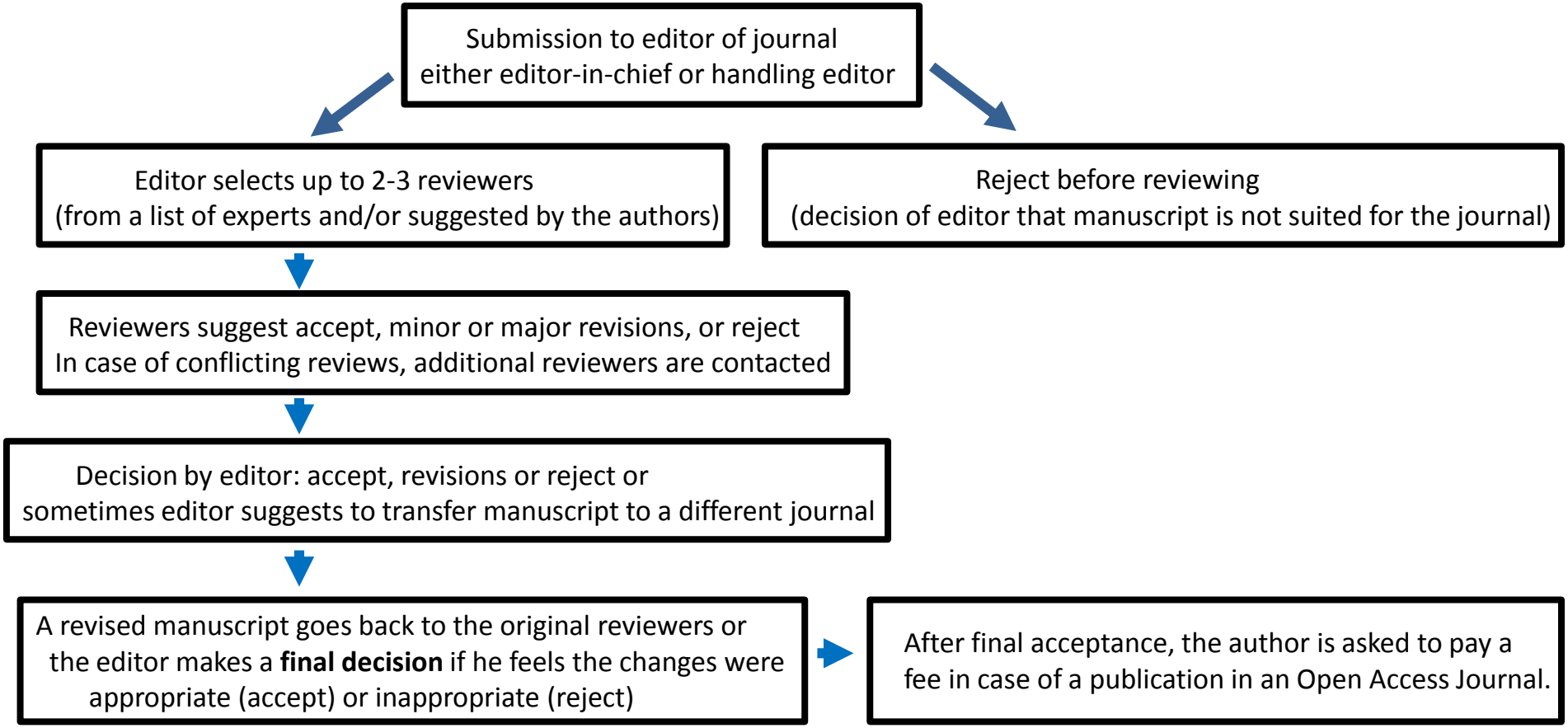
For more information:

- www.dfg.de or www.mpg.de or www.avh.de
- http://www.meduniwien.ac.at/homepage/schnellinfo/good-scientific-practice/
- http://www.iarc.fr/en/publications/pdfs-online/wrk/wrk4/IARC_Code.pdf
- http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1299041/ (Very good article by Georg W Kreutzberg, EMBO *reports*, vol. 5, 2004)
- Homepage of Office of Research Integrity, http://ori.hhs.gov/

Publishing: Submission to a scientific journals

Submission procedure in a serious scientific journal

The usual route of a submitted manuscript in a **scientific**, **peer-reviewed journal** regardless whether a conventional scientific journal or an Open-Access journal



4 Publishing: conventional, open access, hybrid journals

Scientific Journals (peer-reviewed)

* Owned by either a **publisher** (Elsevier, Wiley, Spriner Nature) or by a **scientific organisation** (such as IBRO) and then managed by the organisation itself or by a publisher, and **strictly peer-reviewed**

* The publisher sells a „basket“ of its different scientific journals to either a university (library), a scientific organisation (such as MPG, DFG) or a whole state (Bavaria, Sweden, etc..)..

* All the journals in such a „basket“ can only be assessed by the member scientists of the respective organisation
  Problem: The publishers make big profits on public money and ask for (too-high?!) prices
  (this is the current problem between Elsevier and the German „Hochschulkonferenz“)

* Open Access Journals have a different business model: the scientist who submits a manuscript has to pay *(currently between 1000 and 5000 € for each submission).*

* Open-access publishers also make (big) profits from public money

* If a scientist decides to publish in a „conventional journal“ but wants to have the publication open-access, he/she is charged with approx. 1500 to 5000 € by the publisher (such journals are now called „hybrid journals“ as they also allow open access).
  Problem*: The publisher sells the „basket of journals“ to organisations but on the other hand also makes money for „open access“ from the individual scientist.*

* There is a move among scientists to publish more (if not all) open access

Publishing: predatory journals

Angriff auf die Wissenschaft: Dubiose Unternehmer geben sich als Fachverleger aus und veröffentlichen gegen Geld auch den größten Unsinn als seriöse Studie. Recherchen des *SZ-Magazins* und des NDR zeigen: Forscher, Firmen und Behörden nutzen dieses System. Sie schaden damit nicht nur ihrer Glaubwürdigkeit – sondern auch der Gesellschaft

TEXT

Patrick Bauer, Till Krause, Katharina Kropshofer, Katrin Langhans und Lorenz Wagner

DATENRECHERCHE

Felix Ebert, Laura Eßlinger, Jan Schwenkenbecher und Vanessa Wormer

ILLUSTRATIONEN

Francesco Ciccolella

Süddeutsche Zeitung Magazin, Nummer 29, 20. Juli 2018

4 Publishing: predatory journals

Somewhat unexpectedly, the open access movement paved the way for what are now called

Predatory Journals *(„Raubjournale“)*

* claim to have a high-profile editorial board and to also rely on peer-review (*sometimes they even claim to have important scientists on board, and it turns out to be fake*)

* Such journals often have unsuspicious and quite reasonable titles, and are new in the field (*and many but not all are based in countries like China, India, Turkey etc.*)

* test submissions showed that there is **no peer review**, and even invented „nonsense manuscripts“ were accepted

* these publishers are after the money which authors have to pay to get their article published

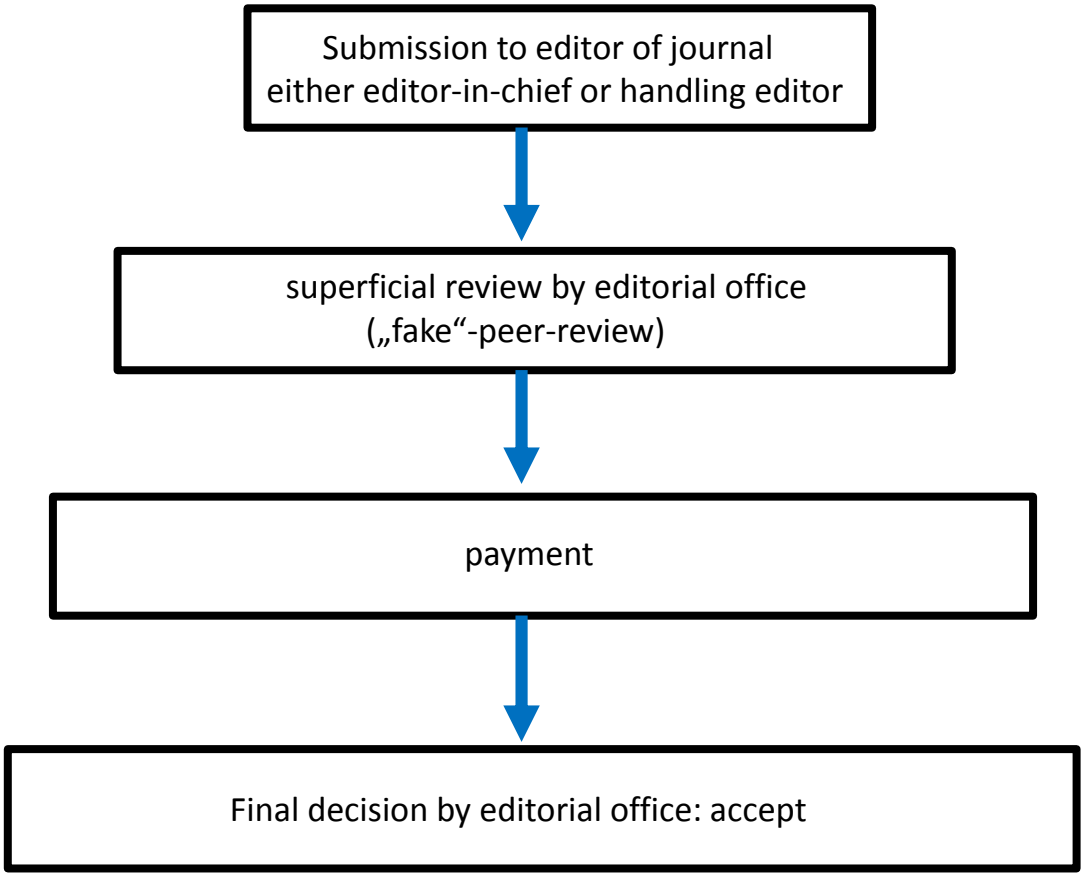
* A survey (by SZ[1)], WDR[2)], NDR[3)]) showed that even „serious“ scientists publish in such journals

This poses a huge problem to science as it undermines credibility of and trust into science

[1)] Süddeutsche Zeitung, [2)] Westdeutscher Rundfunk Köln, [3)]Norddeutscher Rundfunk Hamburg

Publishing: submission to a predatory journals

Submission procedure in a predatory journal



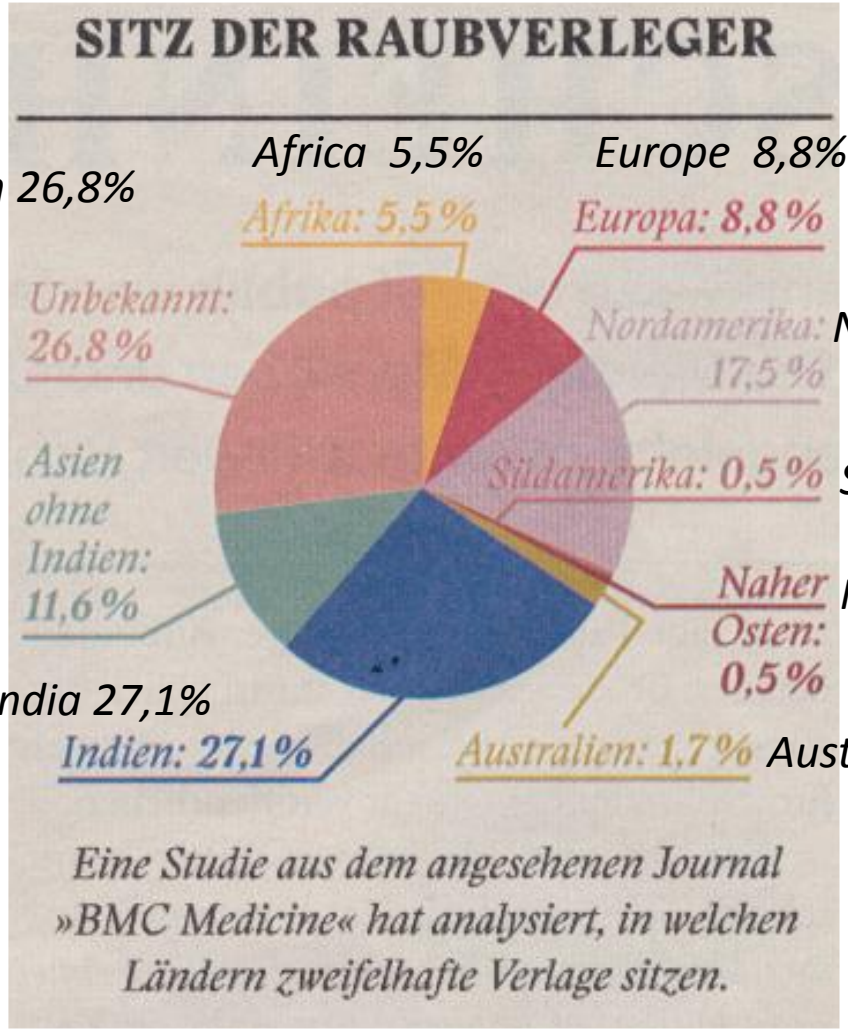
A list of predatory journals and publishers can be found here: total number > 1200

https://predatoryjournals.com/journals/

- Academic Exchange Quarterly
- Academic Research Reviews
- Academy of Contemporary Research Journal (AOCRJ)
- ACME Intellects
- Acta de Gerencia Ciencia (CAGENA)
- Acta Advances in Agricultural Sciences (AAAS)
- Acta Kinesiologica
- Acta Medica International
- Acta Scientiae et Intellectus
- Acta Velit
- Advance Journals of Engineering Mathematics and Computer Sciences (AJEMCS)
- Advance Research Journal of Multidisciplinary Discoveries
- The Advanced Science Journal
- Advances in Aerospace Science and Technology (AAST)
- Advances in Biomedicine and Pharmacy (ABP)
- Advances in Forestry Letter
- Advances in Science, Technology and Engineering Systems Journal (ASTESJ / ASTES Journal)
- Afrasian Journal of Humanities and Social Sciences (AAJHSS)
- African Journal of Traditional, Complementary and Alternative Medicines (AJTCAM)
- Aging
- Ahead International Journal of Recent Research Review (AIJRRR)
- Al Ameen Journal of Medical Sciences (AJMS)
- Aloy Journal of Soft Computing and Applications (AJSCA)
- American Based Research Journal (ABRJ)
- American International Journal of Contemporary Research (AIJCR)
- American International Journal of Contemporary Scientific Research
- American Journal of Advanced Agricultural Research (AJAAR)
- American Journal of Advanced Drug Delivery
- American Journal of Advanced Scientific Research (AJASR)
- American Journal of Advances in Medical Science (ARNACA)
- American Journal of Biotechnology and Medical Research
- American Journal of Engineering Research
- American Journal of Essential Oils and Natural Products (Essential oil International Journal)
- American Journal of Innovative Research and Applied Sciences (AJIRAS)
- American Journal of Pharmacy and Health Research (AJPHR)
- American Journal of PharmTech Research (AJPTR)
- American Journal of Phytomedicine and Clinical Therapeutics
- American Journal of Research Communication (AJRC)
- American Journal of Social issues and Humanities
- American Research Thoughts
- American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)
- American Transactions on Engineering & Applied Sciences
- Anglisticum: International Journal of Literature, Linguistics & Interdisciplinary Studies
- Annals of EURASIAN MEDICINE
- Annals of British Medical Sciences (ABMS)
- Annals of Clinical Case Reports
- Annals of International Medical and Dental Research (AIMDR)
- Annals of Medical and Biomedical Sciences (AMBS)
- Annals of Phytomedicine
- Applied Research Journal
- Archives Des Sciences Journal
- Archives of Clinical and Experimental Surgery
- ARNACA American Journal of Advances in Medical Science
- ARPN Journal of Science and Technology
- ARPN Journal of Systems and Software
- Asia Pacific Journal of Education, Arts and Sciences (APJEAS)
- Asia-Pacific Journal of Multidisciplinary Research
- Asian Pacific Journal of Natural Products (APJNP)
- Asian Pacific Journal of Pharmacy and Phytochemistry (APJPP)
- Asia-Pacific Journal of Research
- Asian Journal of Applied Science and Engineering
- Asian Journal of Biomedical and Pharmaceutical Sciences
- Asian Journal of Chemistry
- Asian Journal of Health and Medical Sciences
- Asian Journal of Humanities and Social Sciences
- Asian Journal of Business and Management Sciences (AJBMS)
- Asian Journal of Mathematics and Applications
- Asian Journal of Multidisciplinary Studies
- Asian Journal of Pharmaceutical and Health Sciences
- Asian Journal of Pharmacy and Life Science
- Asian Journal of Pharmaceutical Research and Health Care (AJPRHC)
- Asian Journal of Science and Technology (Science and Technology Asian Journal)
- Asian Pacific Journal of Health Sciences (APJHS)
- Asian Pacific Journal of Tropical Disease
- Asian Research Journal of Business Management (ARJBM)
- Australasian Journal of Herpetology
- Australasian Medical Journal (AMJ)
- Australian Journal of Basic and Applied Sciences
- Australian Journal of Business and Management Research (AJBMR)
- Astronomical Review
- Averroes European Medical Journal (Averroes-EMJ)
- Ayupharm: International Journal of Ayurveda and Allied Sciences
- Ayushdhar

Publishing: predatory journals

Areas, where publishers of predatory journals are located



Unknown 26,8%

Africa 5,5%

Europe 8,8%

Northamerica 17,5%

Asia excluding India 11,6%

Southamerica 0,5%

Near East 0,5%

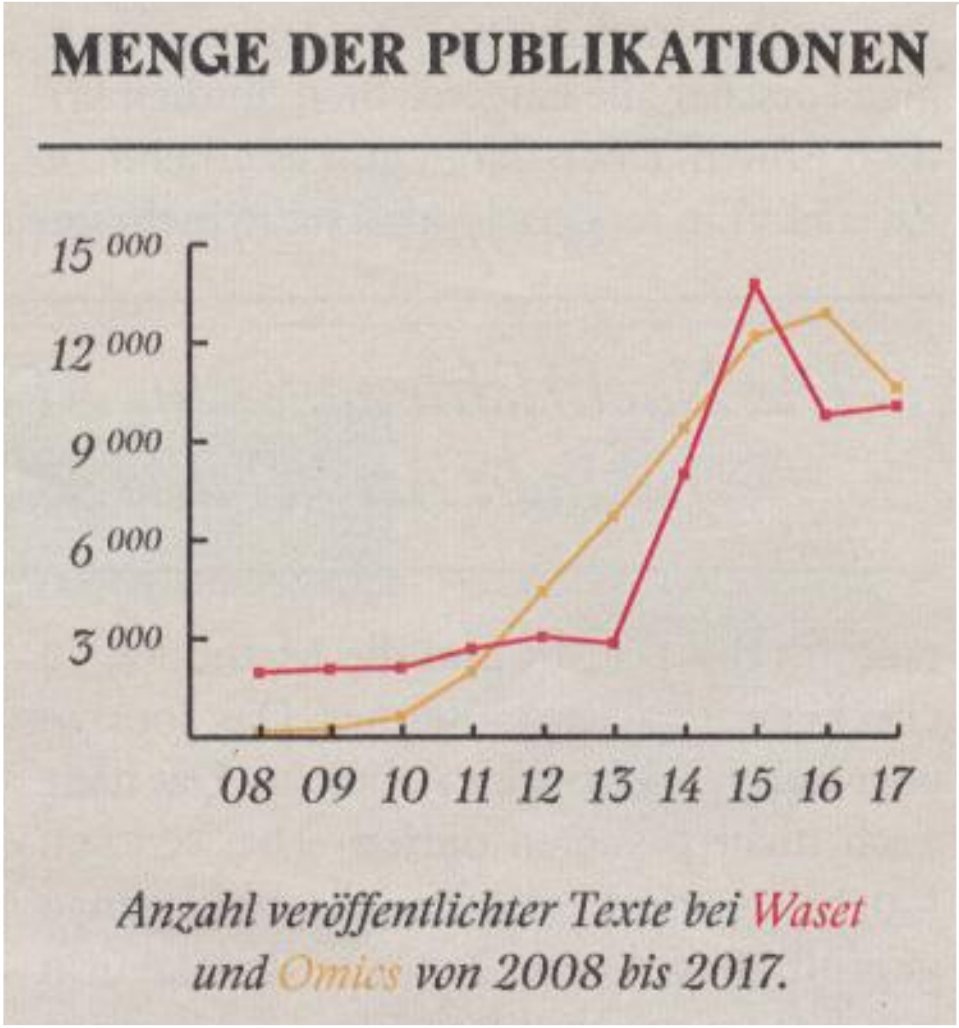
India 27,1%

Australia 1,7%

Quelle:
Süddeutsche Zeitung Magazin,
20. Juli 2018

Publishing: predatory journals

Number of publications in predatory journals, *Waset** and *Omics***, from 2008 to 2017



Quelle:
Süddeutsche Zeitung Magazin, 20. Juli 2018

- Waset: Turkey
- Omics: India

Publishing: predatory journals

A profitable business model:

57.406,06 €
payed by 18 German universities between 2012 and 2017 of tax payer money to the Indian publisher „Omics“, mostly through Open Access Funds

10.450.450,00 €

Sales by „Omics“ in 2016

1.892,00 €
Price for one article submissioin to „Omics“

(in serious open access journals submission rates vary between 1200 and 5000 €)

4 Publishing: predatory journals

What makes a scientist want to publish in such a journal ?

Personal character of scientists: like all human beings, they are/may be:

- **hungry for recognition**
  (Often these guys feel that they are „underrated and not adequately valued“ and their true importance has not been recognized yet)

- **vain and greedy**
  (Why is person A and editor and I am not?)

- **frustrated by peer-review**
  (Their last two papers may have been rejected by a peer-reviewed journal)

- **over-ambitious**
  (they badly need a publication for their next grant proposal, so ANY publication is fine)

4 Publishing: predatory journals

Von: USP Singapore [Bart.Bauer@gmx.com]
An: pflueger
Betreff: Invitation to Join Editorial Board
Gesendet: Sa 04.08.2018 18:28

Dear Hans-Joachim Pflüger,

I hope this email finds you well.
I represent Universe Scientific Publishing Pte. Ltd., a highly reputable publishing, and strategically located in Singapore. We would like to cordially invite you to become an Editorial Board member of our journal entitled Probe - Anatomy and Physiology.
We have come across your recent article, "Postembryonic development of centrally generated flight motor patterns in the hawkmoth," published in Journal of Comparative Physiology A*. With your academic achievements and your profound insights , it is my privilege to sincerely invite you to join us. Finally, we earnestly hope that you would be interested in taking this opportunity. We would like to cooperate with such an excellent scholar as you.

Looking forward to your favourable response.

Best regards,
Editorial Office
Probe - Anatomy and Physiology*

* Vierk R, Duch C, Pflüger HJ **(2010)** Postembryonic development of the centrally generated flight pattern in the tobacco hawkmoth, *Manduca sexta*., **J. Comp. Physiol A** 196:37-50

….and finally, the best advice:
Don't cheat in your experiments
and be honest !

ANNEX

6 Goldene Regeln für die Postdoktorandenzeit
6 Golden rules for your time as a postdoc

1) Gehen Sie Ihren eigenen Weg und seien Sie immer kritisch eingestellt.
Do it your own way and keep a critical mind.

2) Hinterfragen Sie Regeln und sogenannte unumstößliche Wahrheiten.
Question rules and so-called „iron truths".

3) Stimmen Sie Ergebnissen und Folgeschlüssen von Experimenten nur dann zu, wenn Sie die Aussagen mit bestem Gewissen und nach den Regeln der guten wissenschaftlichen Praxis verantworten können.
Only agree to results of experiments and the subsequent conclusions if you can take the responsibility at the best of your conscience and according to the rules of good scientific practice.

4) Bewahren Sie sich Ihre Neugier.
Keep your curiosity.

6 Goldene Regeln für die Postdoktorandenzeit
6 Golden rules for your time as a postdoc

5) Bewahren Sie sich trotz Ihrer unbestreitbaren Erfolge und Höhenflüge in der Zukunft eine gewisse Bescheidenheit.
Despite your undeniable success and your future „intellectual high flights", keep a certain modesty.

6) Schauen Sie über den „Tellerrand" Ihres Fachs, es gibt auch da Interessantes zu entdecken.
Look beyond your own field, as there are interesting things to discover.

Fraud in Science

"In 1992, oncologist **Werner Bezwoda** wowed an audience at a conference in San Diego by describing **how 90 percent of women with advanced breast cancer whom he had treated in his South African clinic with high-dose chemotherapy and bone marrow transplantation had achieved complete remission of their cancer**. Seven years later he described more good results, but **three independent trials of the treatment found no benefit**. People became suspicious, and investigators eventually found that the hospital ethics committee had no record of his studies, patients reported as alive had been discharged for terminal care, and many of them had not given consent. Bezwoda eventually **confessed to misconduct and disappeared from science**. Shortly thereafter, his studies were retracted"

From: Misconduct Around the Globe

Research misconduct is not limited to the developed world, but few countries anywhere are responding adequately.
by Richard Smith and Tracey Koehlmoos | June 1, 2013 , The Scientist

Fraud in Science

Plagiarism: The adoption or reproduction of original creations of another author (person, collective, organization, community or other type of author, including anonymous authors) without due acknowledgment.
Fabrication: The falsification of data, information, or citations in any formal academic exercise.
Deception: Providing false information to an instructor concerning a formal academic exercise—*e.g.* giving a false excuse for missing a deadline or falsely claiming to have submitted work.
Cheating: Any attempt to give or obtain assistance in a formal academic exercise (like an examination) without due acknowledgment.
Bribery: or paid services. Giving assignment answers or test answers for money.
Sabotage: Acting to prevent others from completing their work. This includes cutting pages out of library books or willfully disrupting the experiments of others.
Professorial misconduct: Professorial acts that are academically fraudulent equate to academic fraud and/or grade fraud.
Impersonation: assuming a student's identity with intent to provide an advantage for the student.

From Wikipedia
https://en.wikipedia.org/wiki/Academic_dishonesty

Fraud in Science

A study case from the
Office of Research Integrity (ORI), May 2014
(http://ori.hhs.gov/)

SUMMARY: Notice is hereby given that the Office of Research Integrity (ORI) has taken final action in the following case:

Helen Freeman, Ph.D., Harvard Medical School and Beth Israel Deaconess Medical Center: Based on an investigation conducted by Harvard Medical School (HMS) and Beth Israel Deaconess Medical Center (BIDMS) and additional analysis conducted by ORI in its oversight review, ORI found that **Dr. Helen Freeman, former HMS Postdoctoral Fellow at BIDMS, engaged in research misconduct** in research supported by National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH), grant R37 DK053477.

ORI found that the Respondent engaged in research misconduct by **knowingly and intentionally falsifying three (3) figures and/or legends and one (1) supplemental movie legend in a manuscript submitted for publication to the journal *Nature*** (Freeman, H.C., Kong, D., Sidman, R.L., & Lowell, B. "Inhibition of UCP2 Prevents Neurodegenerative Diseases in Mice.").

Consequences: Fraud in Science

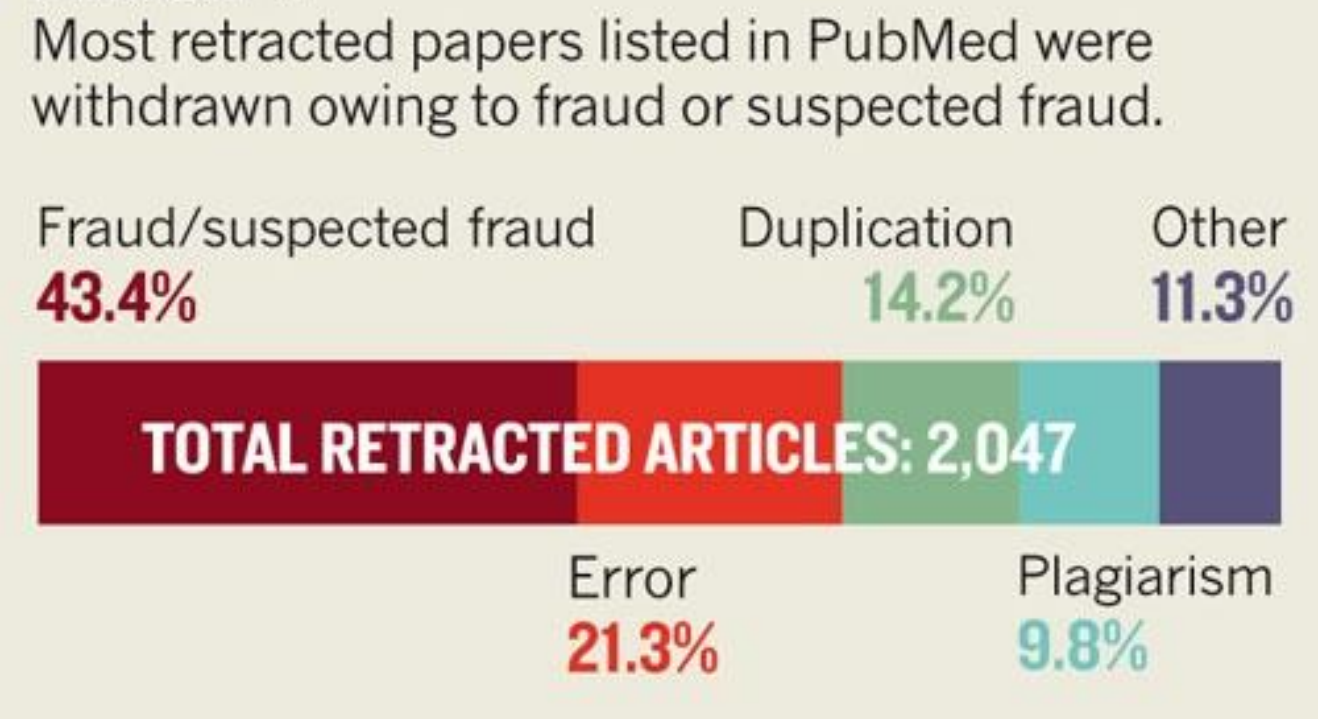
Dr. Freeman has voluntarily agreed **for a period of three (3) years**, beginning on May 6, 2014:

(1) **to have her research supervised** if employed by an institution that receives or applies for U.S. Public Health Service (PHS) funding; Respondent agreed that prior to the submission of an application for PHS support for a research project on which the Respondent's participation is proposed and prior to Respondent's participation in any capacity on PHS-supported research, **Respondent shall ensure that a plan for supervision of Respondent's duties is submitted to ORI for approval**; the supervision plan must be designed to ensure the scientific integrity of Respondent's research contribution; **Respondent agreed that she shall not participate in any PHS-supported research until such a supervision plan is submitted to and approved by ORI**; Respondent agreed to maintain responsibility for compliance with the agreed-upon supervision plan;

(2) that any institution employing her shall submit, in conjunction with each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, **a certification to ORI that the data provided by Respondent are based on actual experiments or are otherwise legitimately derived and that the data, procedures, and methodology are accurately reported in the application, report, manuscript, or abstract**; and

(3) to exclude herself voluntarily from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant.

2 Reasons for paper retractions



A survey examined all 2,047 articles in the PubMed database that had been marked as retracted by 3 May 2012

Experiments on animals

* All experiments on **vertebrates and cephalopods** have to be approved by the respective authorities including Ethics Committees

* Experiments on invertebrate animals have to be indicated to the respective authorities but do not require further approval.

* Experiments with transgenic animals (including *Drosophila*) require further approval

Bundesrepublik Deutschland **Tierschutzgesetz**
In der Fassung der Bekanntmachung vom 18.05.2006 (BGBl. I S. 1206, ber. S. 1313)
zuletzt geändert durch Gesetz vom 07.08.2013 (BGBl. I S. 3154) m.W.v. 15.08.2013
http://dejure.org/gesetze/TierSchG

Gesamte Rechtsvorschrift für Tierschutzgesetz, Fassung vom 21.07.2014
https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20003541

Experiments on animals: the law

4.3 Planning and conduct of animal trials

4.3.1
Responsibility lies with every scientist **to verify the need and the adequateness of planned animal trials** and to ponder the foreseeable burden for trial animals.

4.3.2
Responsibility lies with every individual involved in animal trials **to ensure the well-being and the least possible burden for the trial animals**. The conduct of animal trials and the care of trial animals must only be in the hands of personnel with professional competencies. **The principal investigator of an animal trial takes the legal responsibility for the justification, design and conduct of the animal trial.**

4.3.3
Animal trials must comply with the **principles of natural science research and must adhere to the highest scientific standards.** The hypothesis to be verified and the chosen methodology must be reasonable and the relevant scientific state of the art must be observed.

Experiments on animals: the law

4.3.4

Scientists involved in animal trials are encouraged to aim at the highest profit in knowledge gain under the least burden for the trial animals and with the smallest amount of trial animals ("reduction"). For an optimization of the validity of animal trials, trial animals must be professionally kept under standardized conditions and their getting used to the trial conditions must be diligently facilitated ("refinement"). An animal trial is inadmissible if a valid and recognized alternative method is available ("replacement"). Complying with the three "Rs" (reduction, refinement, replacement) involves accurate planning and preparation and a professional conduct of the trial.

4.3.5

The acquisition of animals for experimentation must clearly be traceable and controllable. Animals whose provenance is unknown cannot be utilized.

Experiments on animals

Today,
the principles of the 3R's
are embedded in legislation
which governs the use of animals in science.

Replacement

Reduction

Refinement

* http://www.fens.org/Outreach/CARE-Committee-on-Animals-in-Research/
* FRAME = **F**und for the **R**eplacement of **A**nimals in **M**edical **E**xperiments
* http://www.animalethics.org.au/three-rs
* http://www.understandinganimalresearch.org.uk/assets/document/AC139C41-B7DD-B46C-8D05FE15E5C4B61D/05%20The%20Three%20R's%20for%20web1.pdf

Experiments on animals: the 3 Rs

Replacement

There are a number of alternative methods that can be used to replace the use of live animals in either all or part of a project. Replacement may be relative, where animals are still required to provide cells or tissue, but experiments are conducted in vitro –

- tissue culture
- perfused organs
- tissue slices
- cellular and
- subcellular fractions

These methods are well suited to studies at the tissue, cellular or subcellular level and, in these circumstances, can be cost-effective and time-saving. They also provide a level of knowledge that complements studies in whole animals.

Experiments on animals: the 3 Rs

Reduction

- studies are designed to be scientifically and statistically valid
- only the minimum numbers of animals are used
- studies should not be repeated unnecessarily.

There are two important caveats:

- the principle of reduction of numbers of animals should not be applied at the expense of greater suffering to individual animals

- **the number of animals used must satisfy statistical requirements -neither too few nor too many.**

Experiments on animals: the 3 Rs

Refinement

There are two key issues:

- To assess the impact of any procedure or condition on the well-being of the animal
- Strategies to eliminate or minimize that impact.
- With increasing knowledge and experience, a number of useful guidelines have been developed to assist in minimizing the impact of particular procedures and practises.
- This is an area where knowledge is rapidly expanding.
- The resources listed below, highlight the latest in these developments.

Administration of substances
Antibody production
Behavioural experiments
Blood collection
Environmental enrichment
Euthanasia
Housing and husbandry
Humane endpoints
Induction of tumours
Pain and distress
Surgical care
Transgenics
Wildlife research

Experiments on animals

Animal Welfare, some useful webpages:

The Boyd Group
http://www.boyd-group.demon.co.uk/

FELASA
http://www.felasa.eu/

Gesellschaft für Versuchstierkunde
http://www.gv-solas.de/

http://wwz.ifremer.fr/institut

Special rules for clinical studies

Some disciplines such as **medicine** have additional rules of good scientific practice

Special rules apply to **Clinical studies**

* study plan
  - synopsis
  - scientific–medical section (rationale for the study, background, intended techniques
  - statistics and data analysis
  - ethical point of view
  - additional aspects in prospective studies
  - requirements by law (Ethics committee has to approve)

* all trials on humans have to be submitted through and approved by an **Ethics committee**