มหาวิทยาลัยมหิดล
Mahidol University

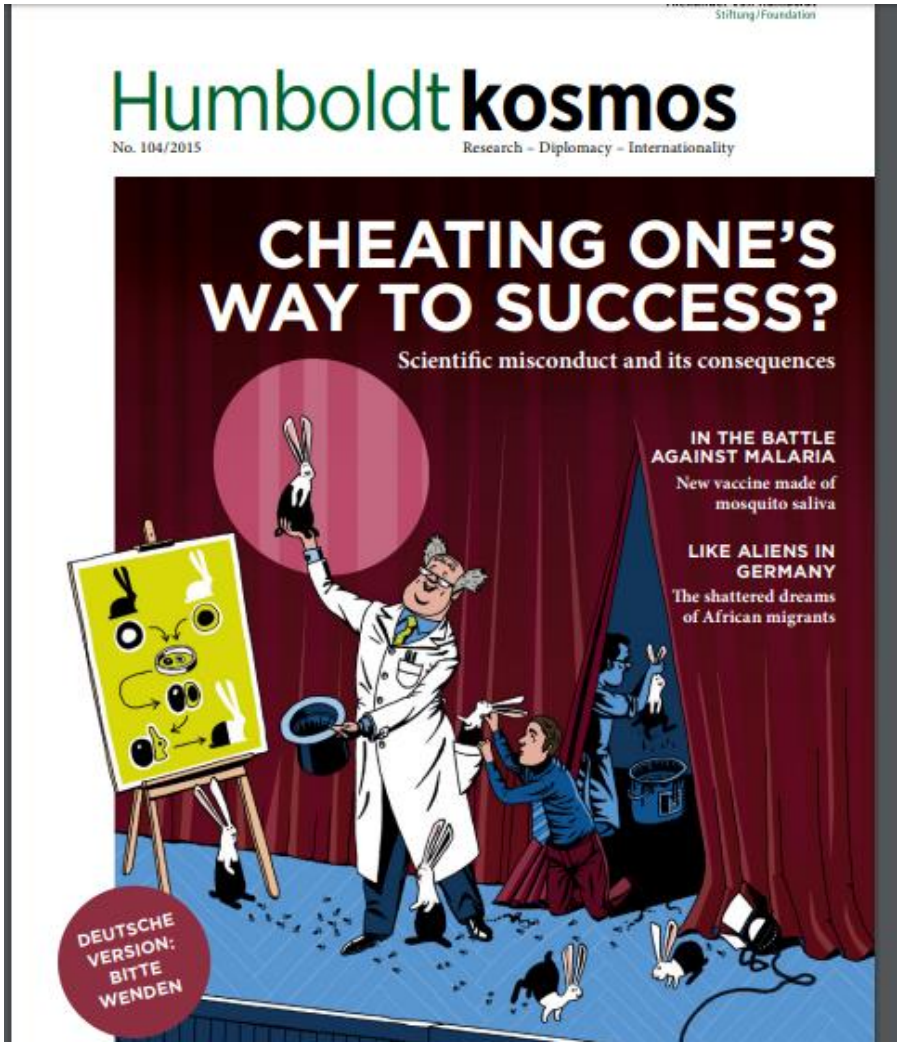
Ethical Issues

Leena Suntornsuk

1 December 2021

Scientific Ethics

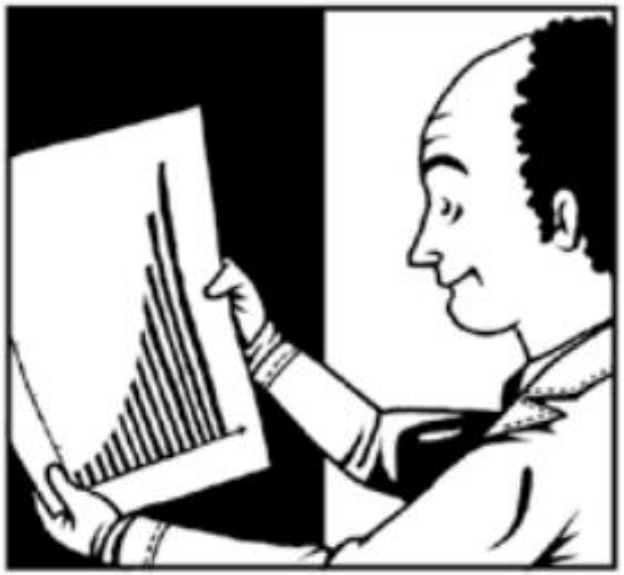
Science has its professional ethics, and without integrity, science cannot exist



Alexander von Humboldt
Stiftung/Foundation


KUNZ
MAYER
MAYER
MÜLLER
KUNZ

IT IS NATURAL THAT RESEARCHERS PREFER TO SHINE RATHER THAN ADMIT THEIR ERRORS ALTHOUGH FAILURE CAN ADVANCE SCIENCE.



Misconduct

Misconduct that distorts scientific knowledge

- Fabrication
- Falsification

Misconduct that misleads scientific community

- Plagiarism (guest, ghost authors)
- Duplicate publication
- Abuse of peer review process

"FFP"

Misconduct

Misconduct relating to human subjects

- Consent issue
- Exploitation issue

Other issues

- Conflicts of interest
- Poor record keeping
- Fail to obtain necessary ethical approval

Piltdown Man (1912)

- Report of hominid remains found in Sussex
- "Missing link"?
- Later shown to be skull of modern man and jawbone of orang-utan
- Fraud certain, but identity of culprit still uncertain
  - Charles Dawson?
  - Martin Hinton?

☒ Fabrication

http://tinyurl.com/dawsonhinton

http://tinyurl.com/piltdownskull

Porton Down (1940s-60s)

- Series of experiments conducted at Porton Down, UK Government and military research centre
- Participants thought they were volunteering for trials to find things such as cure for common cold
- Actually exposed to LSD, sarin, mustard gas, etc
- 2008, MOD agreed to £3M payout to surviving veterans

☒ Consent
☒ Exploitation

Last Updated: Thursday, 31 January 2008, 17:02 GMT

E-mail this to a friend Printable version

Porton Down victims awarded £3m

The Ministry of Defence (MoD) is to award £3m in compensation to 360 veterans of Cold War experiments at the Porton Down research centre.

The government has not admitted liability

Defence minister Derek Twigg said: "The government sincerely apologises to those who may have been affected."

The money is "in full and final settlement" of claims and without admission of liability, Mr Twigg added.

Many of those given nerve agents in the trials at the Wiltshire complex have complained of life-long ill health.

The servicemen were often told they were helping to find a cure for the common cold.

http://tinyurl.com/portondown

Tuskegee Syphilis Study (1932-72)

http://tinyurl.com/tuskegee11

- Poor African-Americans with advanced syphilis recruited to trial to study their "bad blood"
- Deliberately untreated to see long-term effects of infection, even when treatments became available (e.g. Penicillin)
- Over 400 men (plus families) involved
- Breach of human rights

☒ Consent
☒ Exploitation
☒ (Racism)

Eric Poehlman (1992-2002)

http://tinyurl.com/poehlman

- Research into ageing, menopause and Hormone Replacement Therapy, working primarily at Uni of Vermont
- Misconduct exposed by former lab technician Walter DeNino
- Pleaded guilty to falsifying 17 grant applications and fabricating data in 10 research papers
- 2006, first scientist jailed for fraud (also fined $200K)

☒ Fabrication
☒ Falsification

Andrew Wakefield (1998)

- Author on infamous Lancet paper linking autism with MMR vaccine
- Investigation for >2 years (ended May 2010) decided he was guilty of conflict of interest, both as recipient of money from lawyer looking for link to vaccine, and regarding company he set up looking to market test
- Highly selective reporting of data
- Unethical dealings with children

☒ Consent
☒ Exploitation
☒ Conduct of clinical trial
☒ Conflict of Interest (financial)

http://tinyurl.com/wakefield11

Jon Sudbo (1993-2005)

- Research into prevention of oral cancer at Norwegian Radium Hospital, Oslo
- 2005 paper in *Lancet* raised almost instant accusation of fabrication as it included 900 patients from database that didn't exist at time cited
- Also found that second image in a 2001 NEJM paper just enlargement of first
- Eventually 15 papers (plus PhD) retracted

http://tinyurl.com/sudbo11

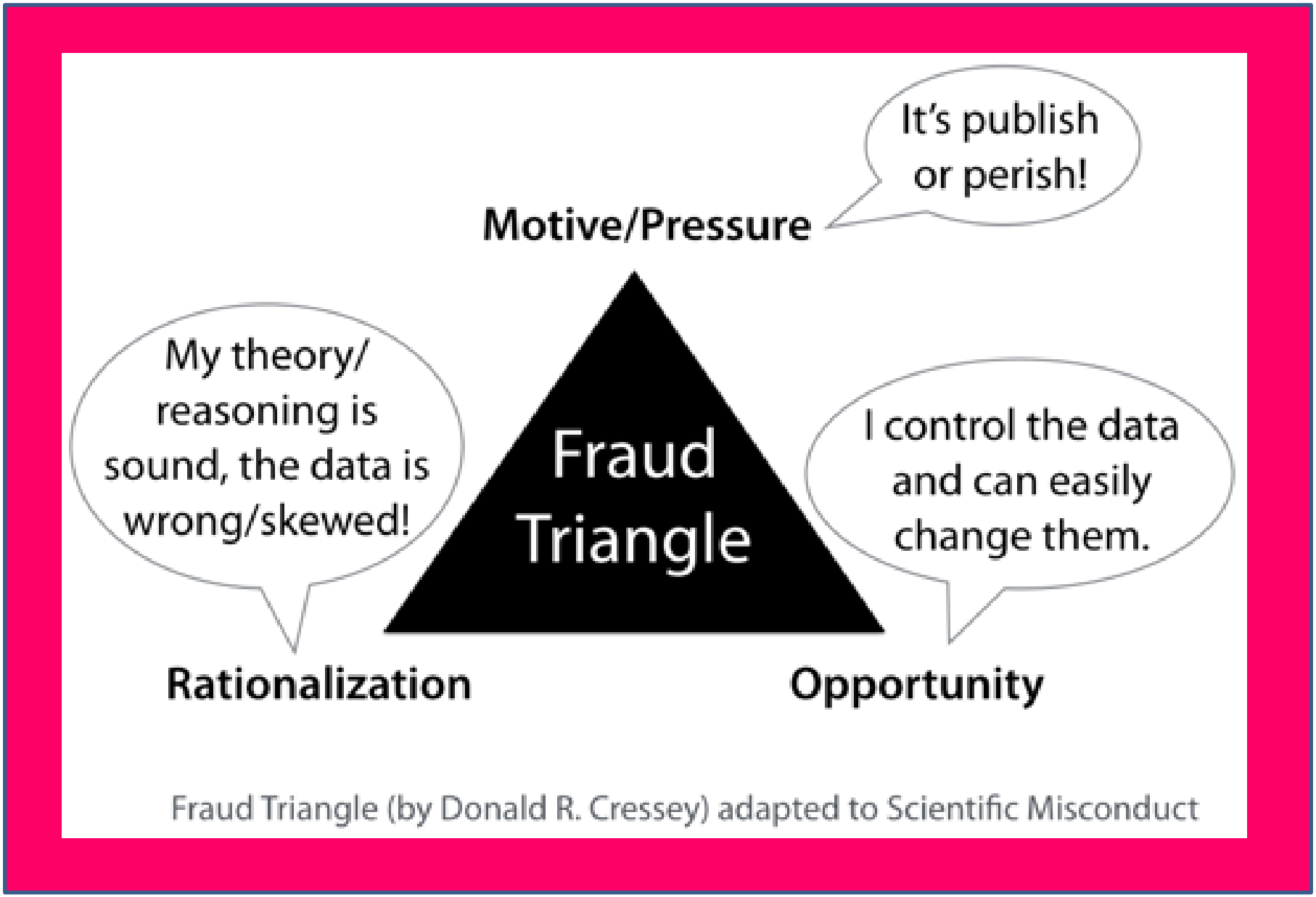
☒ Fabrication
☒ Falsification

Hwang Woo-Suk (2004-05)

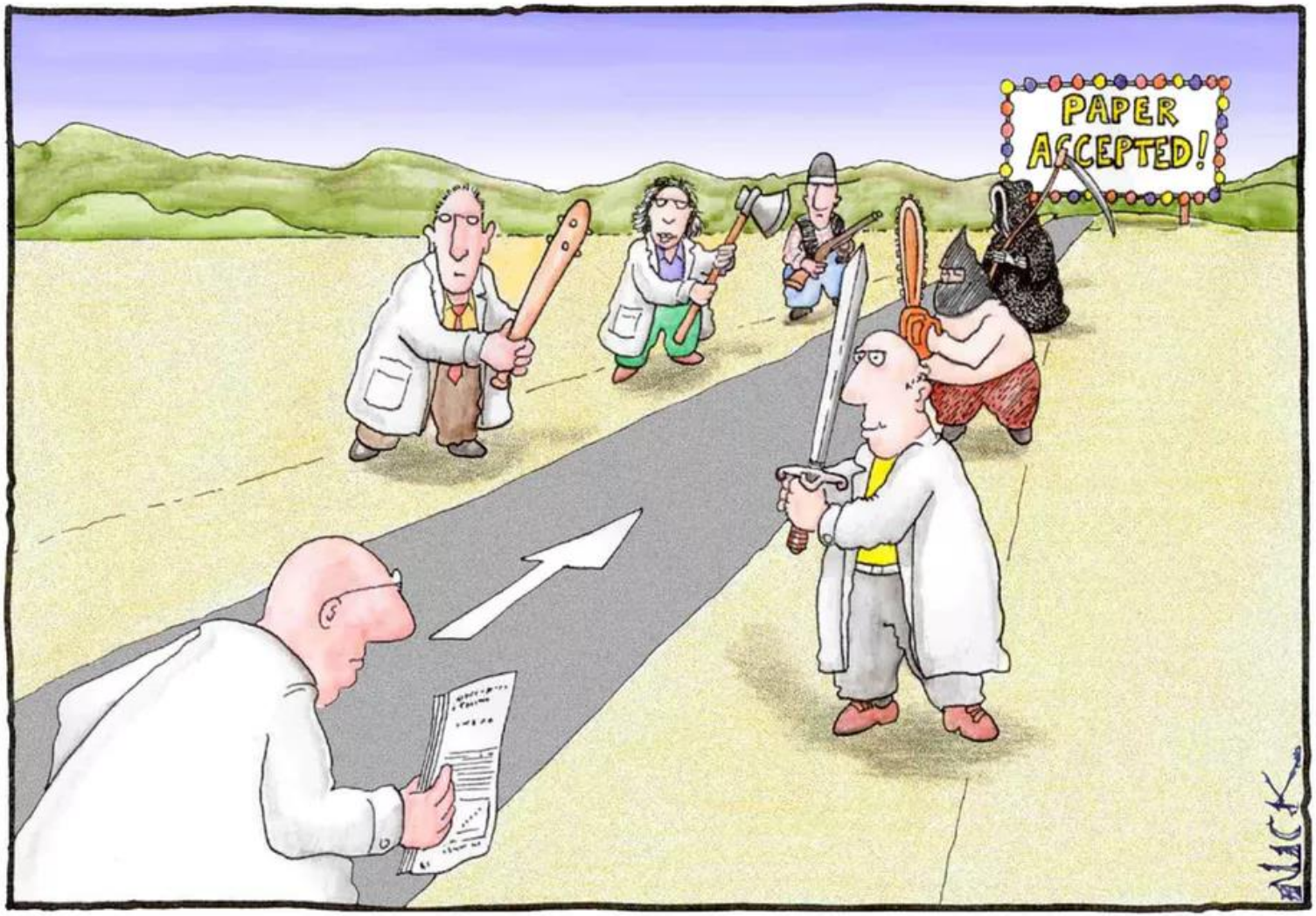
http://tinyurl.com/hwang11

- 2 landmark papers in *Science* reporting production of human embryonic stem cells via Somatic Cell Nuclear Transfer
- Data fabricated and falsified
- Also obtained human eggs for research by unethical means, including requiring female team members to superovulate
- Suspended prison sentence for embezzlement

☒ Fabrication
☒ Falsification
☒ Exploitation
☒ Embezzlement



https://www.google.com/search?q=misconduct+in+science&source=lnms&tbm=isch&sa=X&ved=0CAgQ_AUoAmoVChMI7_DR5Oe2xwIVEAuOCh3RKQXG&biw=1600&bih=756#imgrc=6xvgkMdVTlyDgM%3A



Most scientists regarded the new streamlined peer-review process as "quite an improvement."

http://theconversation.com/predicting-who-will-publish-or-perish-as-career-academics-18473

ARTICLE RETRACTED

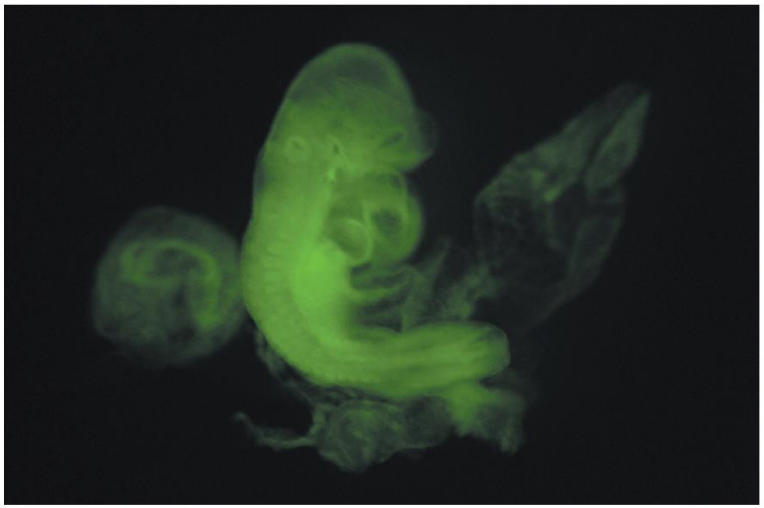
doi:10.1038/nature12968

Stimulus-triggered fate conversion of somatic cells into pluripotency

LETTER RETRACTED

doi:10.1038/nature12969

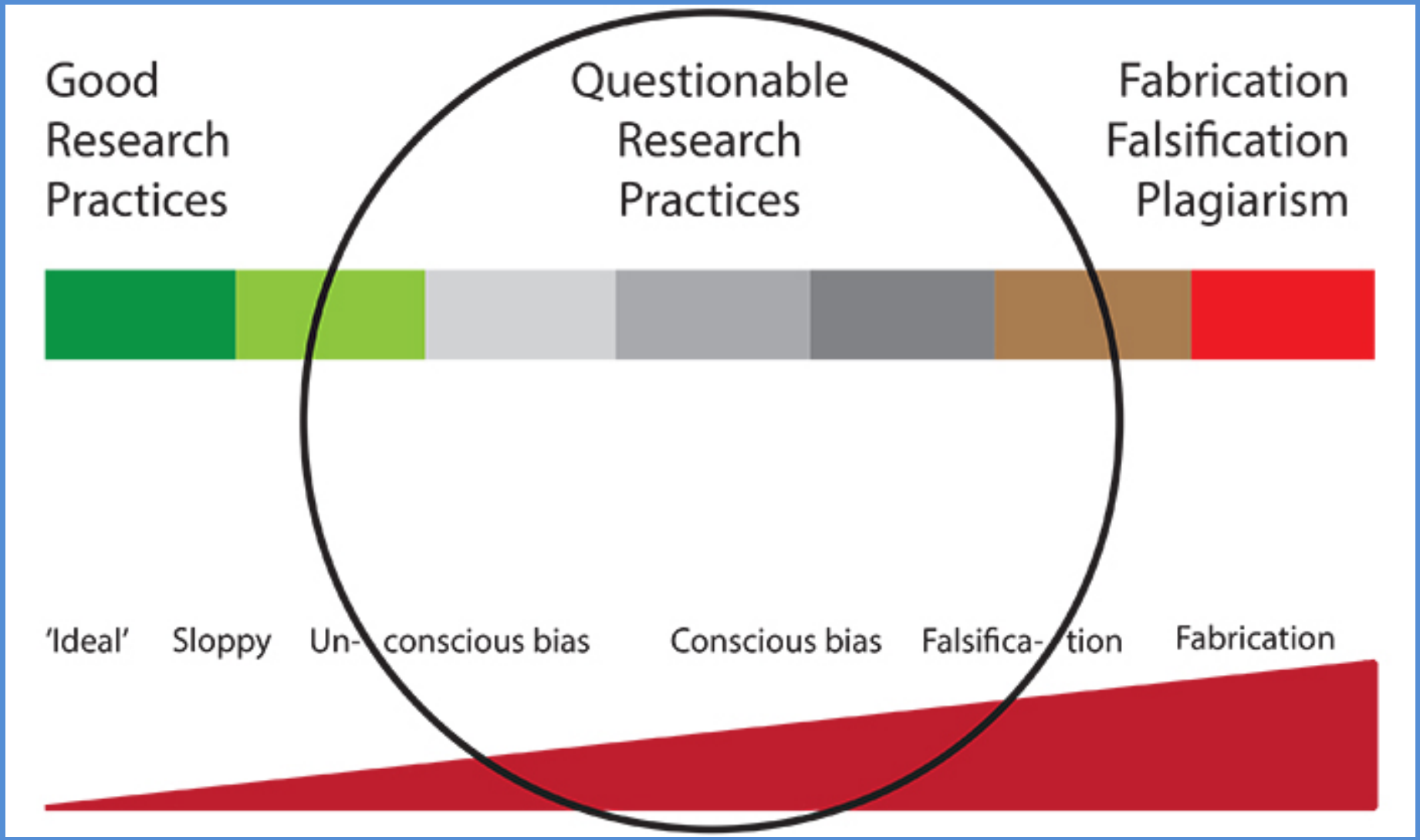
Bidirectional developmental potential in reprogrammed cells with acquired pluripotency



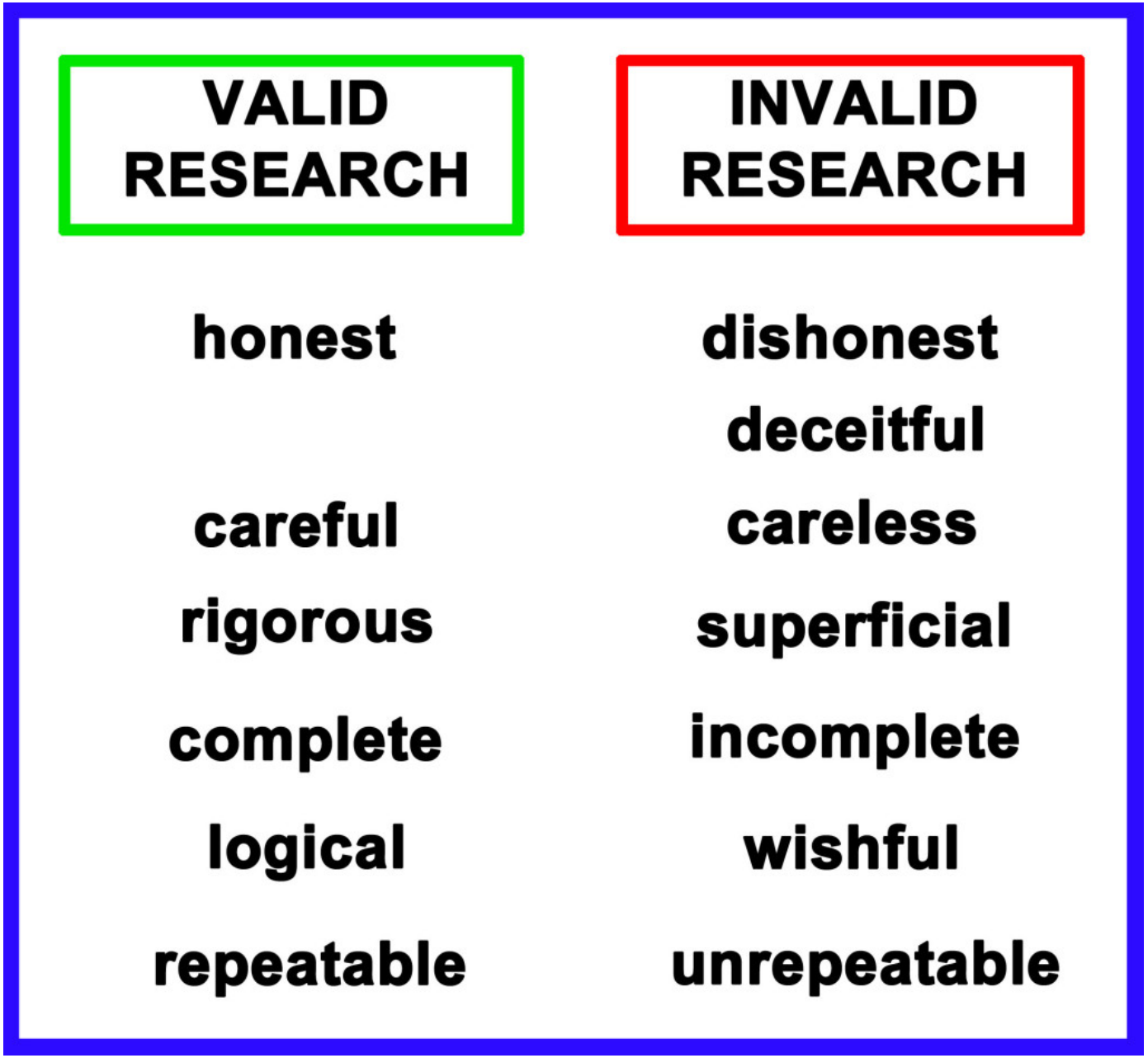
A mouse embryo injected with cells made pluripotent through stress, tagged with a fluorescent protein.

Acid bath offers easy path to stem cells

Just squeezing or bathing cells in acidic conditions can readily reprogram them into an embryonic state.

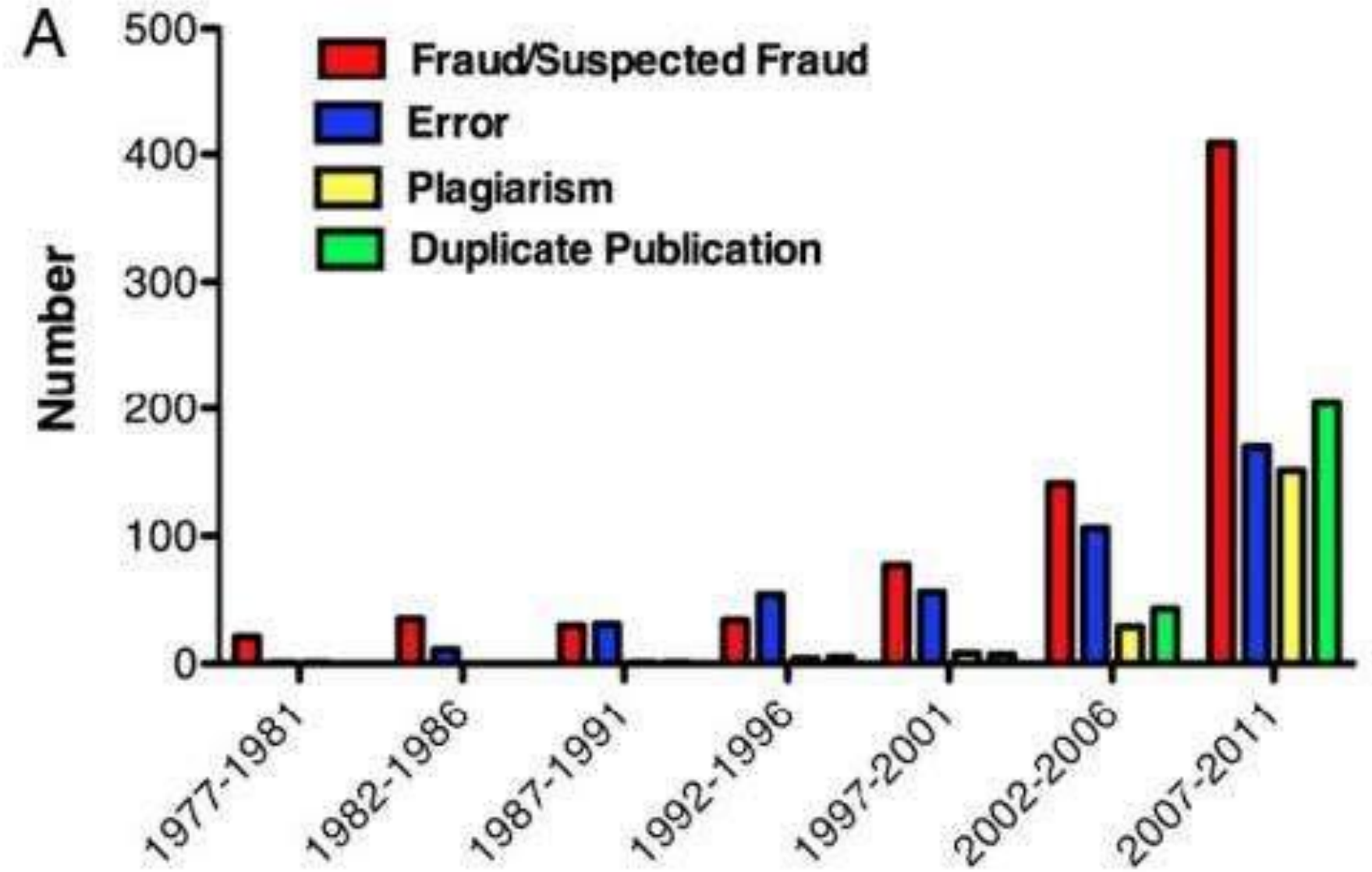


https://www.google.com/search?q=misconduct+in+science&source=lnms&tbm=isch&sa=X&ved=0CAgQ_AUoAmoVChMI7_DR5Oe2xwIVEAuOCh3RKQXG&biw=1600&bih=756#imgrc=ZpHzNKXOZtxXtM%3A

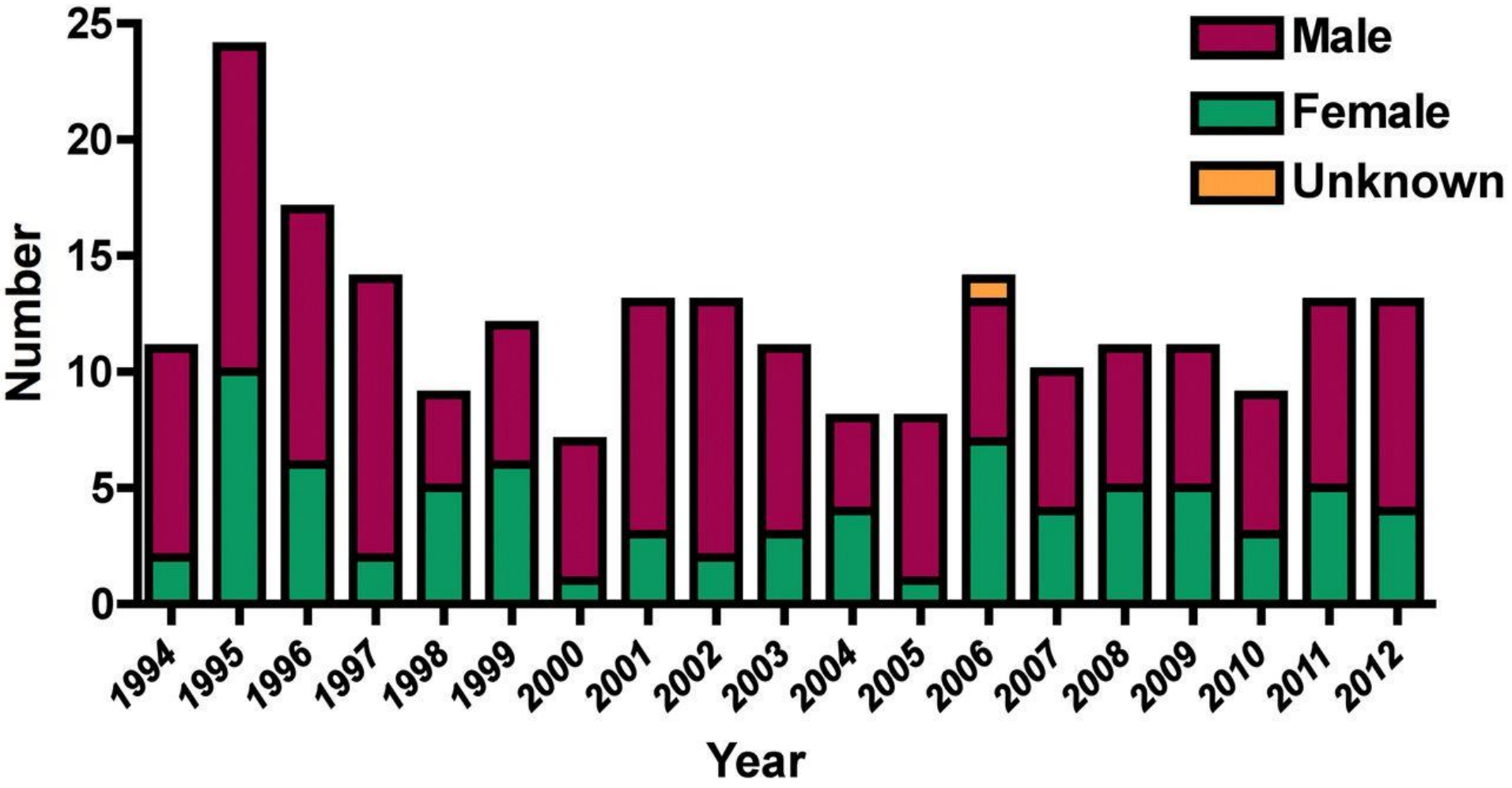


https://www.google.com/search?q=misconduct+in+science&source=lnms&tbm=isch&sa=X&ved=0CAgQ_AUoAmoVChMI7_DR5Oe2xwIVEAuOCh3RKQXG&biw=1600&bih=756#imgrc=V9cesZDagt5aYM%3A

Rise in retraction for misconduct



https://www.google.com/search?q=misconduct+in+science&source=lnms&tbm=isch&sa=X&ved=0CAgQ_AUoAmoVChMI7_DR5Oe2xwIVEAuOCh3RKQXG&biw=1600&bih=756#imgrc=NY-lLgV3qqQ-cM%3A



Ferric C. Fang et al. mBio 2013; doi:10.1128/mBio.00640-12

Did you know that….

- 70% of students admitted to cheating on exams
- 84% admitted to cheating on written assignments
- 52% had copied sentences from websites without citing the sources

Did you know that….

- 51% of students did not believe cheating was wrong
- 95% of cheating students said that they had not been detected
- Almost 85% of students said cheating was necessary to get ahead

The Most Misconduct in Scientific Writing

Plagiarism

Use of others' published and unpublished ideas or words (or other intellectual property) without attribution or permission, and presenting them as new and original rather than derived from and existing source.

Self-plagiarism refers to the practice of an author using portions of his or her previous writings on the same topic in another article, without specifically quoting or citing the self-plagiarismed material.

Plagiarism
(Prof. Sakamon Devahastin)

- Copying another person's idea or written work and claiming it as original
- Even one's own published writing is subject to copyright laws!
- Giving incorrect information about the source
- Changing words but copying the sentence structure without giving credit
- Copying so many words or ideas from a source, whether giving credit or not

Editors ask reviewers to check for prior similar work.

SciFinder Scholar
SciDirect
Scopus
Scirus

Self-plagiarism
Duplication
Plagiarism
Fabrication
Fraud
Reviewer responsibility

Conflict of Interest : employment, research funding, ownership, patent, payment for lectures or travel, consultancies, non-financial support, etc. → Declare

Plagiarism detection tools

eTBLAST is a text similarity search engine

http://etest.vbi.vt.edu/etblast3/

Relevancy Threshold (Similarity ratio = 0.56). Entries above here have an unusual level of similarity

Deja Vu: a Database of Highly Similar Citations

http://spore.vbi.vt.edu/dejavu/

iThenticate - Identifies by color code identical sections from other papers, including the author's, gives word count

Gary Christian, Department of Chemistry, University of Washington

Possible causes of plagiarism

- Excessive competition ("publish vs. perish")
- Reduced motivation to learn and make original contribution to knowledge
- Lack of appropriate role models (ethical and professional)
- Deficiency in language skills (no excuse!)
- Massive explosion in publication (harder to detect!)

Typical cases

- Inadequate paraphrasing of original work
- Simultaneous submission of manuscript for possible publication
- Re-submitting rejected manuscripts without making any changes
- Including well known professor's name and affiliation in a manuscript without permission

Consequences

- Blacklist from editors
- Complaints sent to the university
- Barred from research and research supervision and from holding any administrative position at the university

How to Avoid

- Be ethical
- Give credit where it is due
- Work harder and smarter
- Don’t take short cuts
- Improve language skills
- Be ethical

Selected cases

- **Chemical & Engineering News**
  - 70 papers during 2004-2007
  - 25 journals in 3 years
  - Self-plagiarism
  - Four paper of the same work to four journals
  - Claimed to use advanced instrument not available
  - Charging students fee to award them degrees

Athiporn Doomkaew[1]
Brompoj Pruthiwanasan[1]
Leena Suntornsuk[1,2]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mahidol University, Bangkok, Thailand
[2]Center of Excellence for Innovation in Drug Design and Discovery, Faculty of Pharmacy, Mahidol University, Bangkok, Thailand

Received March 21, 2014
Revised March 21, 2014
Accepted April 5, 2014

Research Article

Simultaneous analysis of metformin and cyanoguanidine by capillary zone electrophoresis and its application in a stability study

A capillary zone electrophoresis method was established for stability study of metformin (MET). MET and cyanoguanidine (CGN; a major degradation product) were well separated (with a resolution of 38.9) in 40 mM citrate buffer (pH 6.7) using a fused-silica capillary with an effective length of 60 cm and an inner diameter of 50 μm, injection at 50 mbar for 5 s at 30°C with an applied voltage of 15 kV and diode array detection at 214 nm. Method validation showed good linearity (r^2 > 0.99), precision (%RSDs < 1.98%), and accuracy (%recovery between 98.3 and 100.9%). Limits of detection and quantification were <30 and 100 μg/mL, respectively. The method was robust upon alteration of pH and voltage (%RSDs < 1.99%). Stability profiles of metformin from 11 stress conditions and the degradation kinetics could be established, using the simple capillary zone electrophoresis system. A mechanism for the degradation of MET was also proposed. MET was stable in neutral hydrolysis, but degraded under alkaline hydrolysis and oxidation. Under both conditions, CGN was quantified as the degradation product. An assay of MET in raw material and tablets showed that content of the drugs in all samples met the requirements of pharmacopeias and CGN was not detected.

Keywords: Cyanoguanidine / Capillary zone electrophoresis / Metformin / Stability studies
DOI 10.1002/jssc.201400310

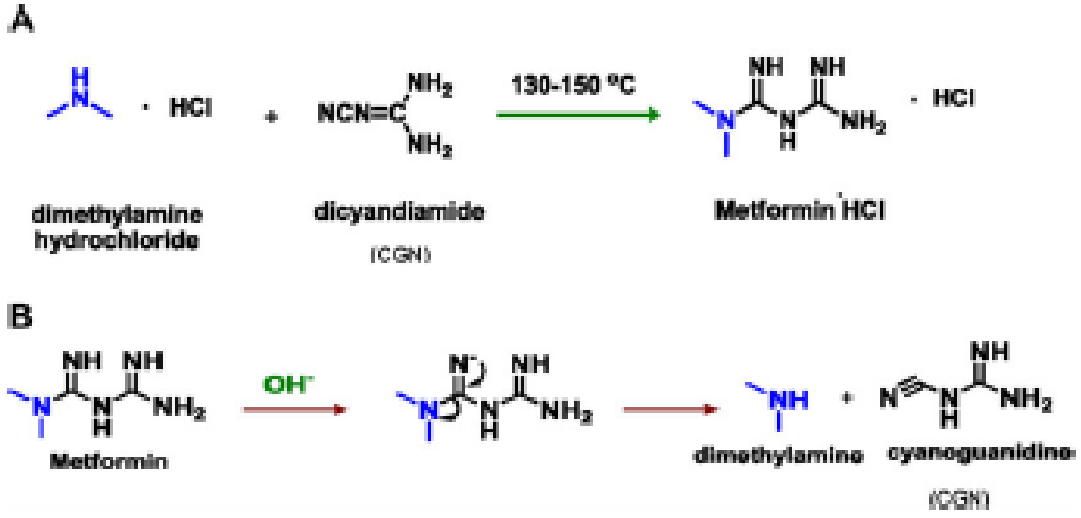


Figure 1. (A) A synthesis of MET and (B) proposed mechanism for the formation of CGN during the forced degradation of MET in alkaline hydrolysis.

Organic Process R&D editorial (C&ENews, Feb 24, 2003, p. 31):

Authors deliberately don't a cite competitor's work

Hope reviewers don't find out is competition

May also neglect to mention own work.
Only one reason: the work is similar to a previous publication.

This is self-plagiarism!

The authors have disregarded the extensive research work spent on the extraction of the actual compounds from tissues that have been carried out during the recent decades….

Reject

The submitted paper focuses on the detection of catechol derivatives using a laccase modified electrode. The work is similar to several other papers from this group. The appears to be hastily put together both from the perspective of how it is written and from the depth of the science. Therefore, because of the lack of novelty and the difficulty the reader has in understanding the manuscript.

Don’t copy

Preconcentration with membrane cell and adsorptive polarographic determination of cyanides in air, Analytica Chimica Acta, 382 (1999) 283.

Preconcentration with membrane cell and adsorptive polarographic determination of phenols in air, Talanta, 53 (2000) 517.

Don’t copy

Preconcentration with membrane cell and adsorptive polarographic determination of formaldehyde in air, Talanta, 57 (2002) 317. Received 12 Dec. 2001, revised 31 Dec. 2001.

Preconcentration with membrane cell and adsorptive cathodic stripping voltammetric determination of aniline in air, Indian Journal of Chemistry, 41A (2002) 2310. Received 3 Sept., 2001, revised 10 May 2002

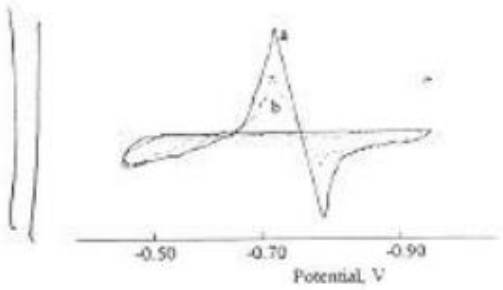


Fig.4—Derivative cyclic voltammograms: 1.0×10^{-4} mol/L aniline; 0.0010 mol/L HCl; 0.0030 mol/L $NaNO_2$; 0.0025 mol/L Na_2SO_3; 0.0060% HCHO; 0.0060% Triton X-100; scan rate of 100 mV/s; (a) First scan; (b) Second and repetitive scans.

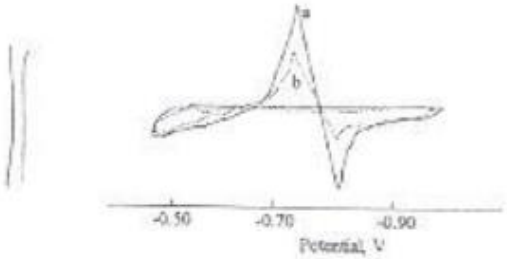


Fig. 5. Derivative cyclic voltammograms: pH 5.7; 1.0×10^{-6} M formaldehyde; 2.0×10^{-5} M DNPH; 0.010 M NaCl; 0.0010% Tween-80; scan rate of 100 mV s^{-1}; (a) First scan; (b) Second and repetitive scans.

Aniline paper

Formaldehyde paper

Don’t self-plagiarize

I think there is no originality in this work. My opinion is that the authors often change journals to increase the number of their papers. I compare this report to some papers found in Science Direct: ……..

…….There are many similarities with this manuscript. The titles and keywords are mixed to have the same objective. Different paragraphs are not original…..

Don’t send the same work to two different journals

Additional Editor’s comments:

I have received one review on this paper which recommends rejection (review attached). Whilst awaiting the second review I noticed a paper by the same authors which had recently been published:

Determination of trace lead, cadmium and mercury by on-line column enrichment followed by RP-HPLC as metal-tetra-(4-bromophenyl)-porphyrin chelates. xxx Talanta xx (200x) xxx-xxx

I have compared the Talanta paper with the manuscript submitted to Analytica Chimica Acta and I was astounded to see that they are virtually identical. It therefore appears that the authors have submitted the same work to two journals and were prepared to see it published in both. If true, this is an outrageous and totally unacceptable action.

*"**Although** too large for attaching to a rat, the size of the remote unit expedited circuit construction, modification and testing" (Garris)*

"**As the unit** was too large for attaching to a rat, the size of the remote unit expedited circuit construction, modification and testing" (submitted manuscript)

Plagiarism

*"A 14.7456MHz crystal enables an ADC rate of 100 KS/s and 460 Kbaud serial communication with the third component of the **remote** unit, telemetry." (Garris)*

"14.7456 MHz crystal enables an ADC rate of 100 KS/s and 460 Kbaud serial communications with the third component of the **moving** unit, telemetry" (submitted manuscript)

Available online at www.sciencedirect.com
SCIENCE DIRECT®
Talanta 63 (2004) 303–307
Talanta
www.elsevier.com/locate/talanta

Coated graphite-epoxy ion-selective electrode for the determination of chromium(III) in oxalic medium

S. Khalil [a,*], A.A. Wassel [b], F.F. Belal [c]

[a] Department of Chemistry, Faculty of Science, Fayoum, Cairo University, Fayoum Branch, 63514-Fayoum, Egypt, Saudi Arabia
[b] National Organization For Drug Control & Research, Giza, P.O. Box 29, Cairo, Egypt, Saudi Arabia
[c] Faculty of Pharmacy, King Saud Univerisity, Riyadh, Saudi Arabia

Received 25 June 2003; received in revised form 7 October 2003; accepted 31 October 2003

ANALYTICAL LETTERS, 30(3), 417–427 (1997)

COATED GRAPHITE-EPOXY ION-SELECTIVE ELECTRODE FOR THE DETERMINATION OF IRON(III) IN OXALIC MEDIUM

KEY WORDS: iron(III) ion-selective electrode, coated graphite-epoxy conductor electrode, potentiometry, PVC.

Marcos Fernando de Souza Teixeira, Alexandre Zambon Pinto and Orlando Fatibello-Filho*

Laboratório de Química Analítica, Departamento de Química, Centro de Ciências Exatas e de Tecnologia, Universidade Federal de São Carlos, Caixa Postal 676-13560-970-São Carlos-SP, Brazil.

Talanta

Abstract

A coated graphite-epoxy chromium(III) ion-selective electrode, based on the ion-pair between $[Cr(oxalate)_3]^{3-}$ anion and tricaprylmethylammonium cation (Aliquat 336) in a poly(vinylchloride) (PVC) matrix is constructed. A thin membrane film of this ion-pair, dibutylphthalate (DBP) in PVC was deposited directly onto a Perspex® tube containing a graphite-epoxy conductor substrate attached to the end of a glass tube. The effect of membrane composition (ion-pair, DBP and PVC), oxalate concentration, pH and some cations and anions upon the electrode response is investigated. The electrode shows a linear anionic response to E vs. log $[Cr^{3+}]$ in the chromium(III) concentration range from 2.9×10^{-6} to 10^{-2} mol l^{-1}, and a slope of -18.7 ± 0.5 mV dec^{-1}, at pH working range of 2–8 and 0.3 mol l^{-1} oxalate concentration. Variation in the potential of about ±2 mV was observed during a working day of 7–8 h. The response time was less than 5 s and the life time of this electrode was superior to 1 year (over 1500 determinations by each polymeric membrane), with a practical detection limit of 2.1×10^{-6} mol l^{-1}. Application of this electrode for chromium(III) determination in some food materials and various types of plants is described.

Keywords: Chromium(III) ion-selective electrode; Coated graphite-epoxy conductor electrode; Potentiometry; PVC

Analytical Letters

ABSTRACT

A coated graphite-epoxy iron(III) ion-selective electrode, based on the ion-pair between $[Fe(oxalate)_3]^{3-}$ anion and tricaprylylmethylammonium cation (Aliquat 336) in a poly(vinylchloride) (PVC) matrix is constructed. A thin membrane film of this ion-pair , dibutylphthalate (DBPh) in PVC was deposited directly onto a Perspex^R tube containing a graphite-epoxy conductor substrate attached to the end of a glass tube. The effect of membrane composition (ion pair, DBPh and PVC), oxalate concentration, pH and some cations and anions upon the electrode response is investigated. The electrode shows a linear anionic response to E vs. log$[Fe^{3+}]$ in

Talanta

1. Introduction

Since the development by Ross [1] of the first liquid membrane electrode sensitive to the calcium cation, much progress has been made. Moody et al. [2,3] replaced the thick layer of liquid exchanger material supported by a dialysis membrane (cellulose acetate) by a thin polymeric film of poly(vinylchloride) (PVC), thus significantly decreasing the high resistance and relatively long response of that electrode. Several electrodes were constructed for various cations, anions and organic compounds.

Analytical Letters

INTRODUCTION

Since the development by Ross[1] of the first liquid membrane electrode sensitive to the calcium cation, much progress has been made. Moody and Thomas[2,3] replaced the thick layer of liquid exchanger material supported by a dialysis membrane (cellulose acetate) by a thin polymeric film of poly(vinylchloride) (PVC), thus significantly decreasing the high resistance and relatively long response of that electrode. Several electrodes were constructed for various cations, anions and organic compounds.

Talanta

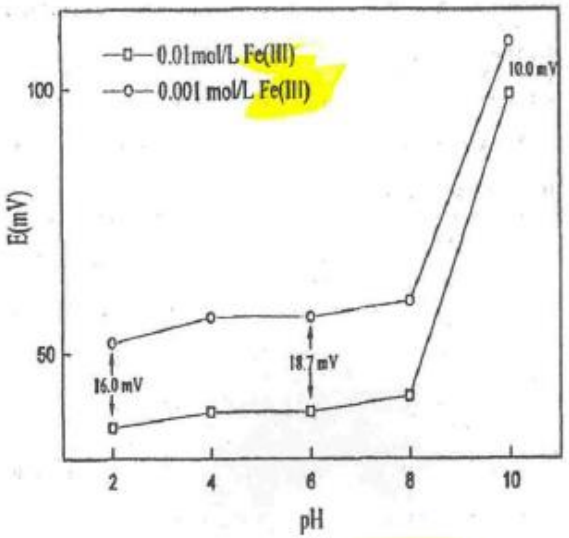


Fig. 1. Effect of pH on the response of the chromium(III) ion-selective electrode for chromium(III) concentration of: (○) 1×10^{-3} and (□) 1×10^{-2} mol l^{-1} in 0.3 mol l^{-1} oxalate, at 25.0 °C.

Analytical Letters

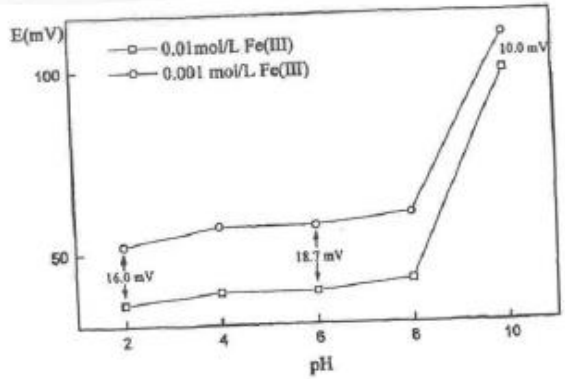


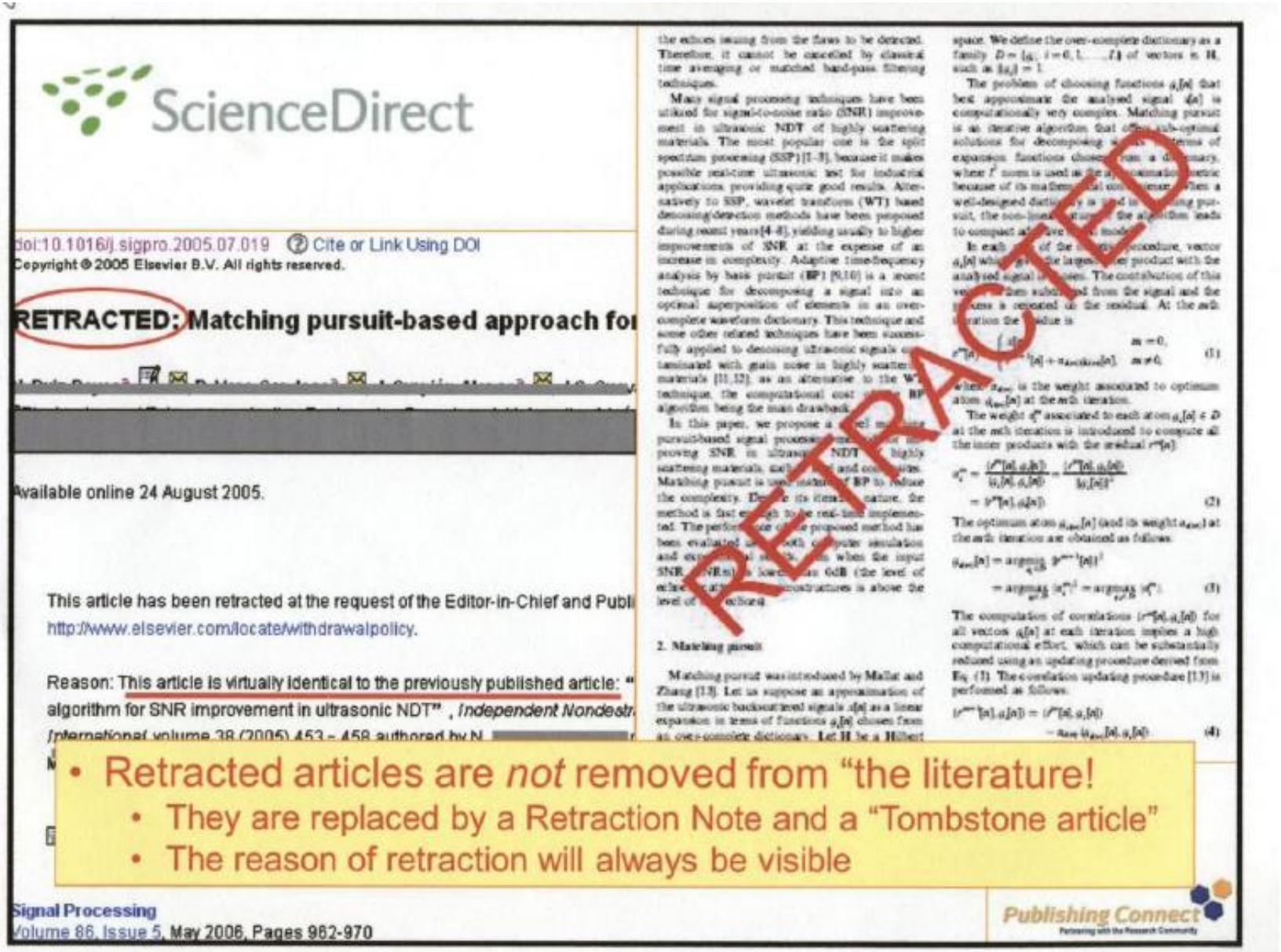
Figure 1: Effect of pH on the response of the iron (III) ion-selective electrode for iron (III) concentration of: ○○○ :1x10^{-3} and □□□ :1x10^{-2} mol/L in 0.3 mol/L oxalate, at 25.0 °C.

Retraction

“ In science, a retraction of a published scientific article indicates that the original article should not have been published and that its data and conclusions should not be used as part of the foundation for future research. The most common reasons for the retraction of articles are scientific misconduct including plagiarism, serious errors, and duplicate/concurrent publishing (self-plagiarism). The retraction may be initiated by the editors of the journal, or by the author(s) of the papers (or their institution).”

https://en.wikipedia.org/wiki/Retraction

The Bad published and perished!!!



ScienceDirect

doi:10.1016/j.sigpro.2005.07.019 Cite or Link Using DOI

RETRACTED: Matching pursuit-based approach fo

Available online 24 August 2005.

This article has been retracted at the request of the Editor-in-Chief and Publi
http://www.elsevier.com/locate/withdrawalpolicy.

Reason: This article is virtually identical to the previously published article: "
algorithm for SNR improvement in ultrasonic NDT" , *Independent Nondestr*
International volume 38 (2005) 453 – 458 authored by N

RETRACTED

- Retracted articles are *not* removed from "the literature!
  - They are replaced by a Retraction Note and a "Tombstone article"
  - The reason of retraction will always be visible

Signal Processing
Volume 86, Issue 5, May 2006, Pages 962-970

Publishing Connect

RETRACTED: Long-Term Quality of Life After Lung Resection

Thoracic Surgery Clinics, ... 2008

- This article has been **retracted** at the **request** of the **Editor**-in-**Chief**.

Reason: significant portions of this article (605 words, 7 paragraphs) were copied verbatim from an article published in *Chest* without attribution

sciencedirect.com

- 670 articles found as: retracted at the request of the Editor (all journals)
- 13 articles found as: retracted at the request of the Editor (Talanta)

Action against violation

Dear Dr. [redacted]

Very serious allegations of plagiarism have been made against you for publishing without reference, studies by Kaneko at al (see attached). These allegations have been made to the Editors of Analytical Chemistry, Analitica Chimica Acta, Talanta and Chemistry Letters.

Such allegations, if not answered satisfactorily, will result in you being blacklisted by most of the world's major Analytical journals. I believe an answer to these charges is essential.

Sincerely yours,

[redacted]

Don’t try to fool the editors

Suggested Reviewers

1.Professor Munetaka Oyama,
Division of Research Initiatives,
Kyoto University, Japan.
E. Mail: oyama@iic.kyoto-u.ac.jp

Thank you very much for your reviewer invitation. After opening the contents, I have found that I am a co-author of this paper. So, I cannot referee the paper.
Sincerely yours,
Munetaka Oyama

Don’t try to fool the editors

Some authors will submit a rejected paper some time later

Hope the editor doesn’t notice and will have it reviewed again

Dear [redacted]

As I indicated in an earlier mail - I have seen this paper before. I therefore enclose my report (Analyst) together with the new one in an attachment to this mail.

Not so much has been changed in this paper. Maybe the language has improved a bit (revision probably still needed - English is not my mother tongue so I should be careful here). Still there is no explanation how the determinands migrate, what kind of charge they have, etc., why, why? It would be so simple to include. Did they not understand my previous report???

I cannot follow the logic behind this paper. The problem seems to be an artificial one - the real samples, on the other hand, offer a separation and quantification problem that would be possible to solve thereby making the paper more valuable.

Dear [redacted]

I received the attached review on manuscript PH901 for Anal Chim Acta.
The reviewer comments about seeing something very similar for Talanta
Are you able to check into this to see if there is duplication of the Talanta manuscript?

Bets regards,

[redacted]

Dear [redacted]

Yes, we have seen this paper, and rejected it, so the author is recycling it.
Attached is the review we received.
Best regards,

[redacted]

คำถามที่พบบ่อย

คำถาม 1: การทำสิ่งใดบ้างที่เข้าข่ายผิดจริยธรรมในการเผยแพร่ผลงานวิจัย?

คำถาม 2: บทความที่ลงเอกสารประชุมวิชาการ conference proceeding ไปแล้ว สามารถนำไปส่งวารสารได้อีกหรือไม่?

คำถาม 3: ประโยคที่ปรากฏในบทความเดิมแล้วนำมาใช้ในบทความใหม่ ถือเป็นการซ้ำซ้อนหรือไม่?

คำถาม 4: รูปภาพ หรือกราฟที่ปรากฏในบทความที่เผยแพร่ไปแล้ว สามารถนำมาใช้ในบทความใหม่ได้อีกหรือไม่?

คำถาม 5: งานวิจัยที่เคยเผยแพร่เป็นภาษาไทยแล้ว สามารถแปลเป็นภาษาอังกฤษแล้วเผยแพร่เป็นบทความใหม่ได้หรือไม่?

คำถามที่พบบ่อย

คำถาม 6: การละเมิดสิทธิความเป็นผู้นิพนธ์ (Authorship) คืออะไร?

คำถาม 7: วารสารที่ระบุว่ามี impact factor แสดงว่าอยู่ในฐานข้อมูล ISI ใช่หรือไม่?
ตอบ: การเช็คว่าวารสารอยู่ใน ISI หรือไม่ทำได้ที่ http://ip-science.thomsonreuters.com/cgi-bin/jrnlst/jloptions.cgi?PC=D ส่วนการเช็คว่าวารสารอยู่ใน Scopus หรือไม่ทำได้ที่ http://www.scimagojr.com/journalsearch.php

คำถาม 8: วารสารใน Beall's list คืออะไร? การส่งผลงานไปตีพิมพ์ในวารสารใน Beal's list จะส่งผลอย่างไร?

คำถาม 9: การนำงานวิจัยที่ทำไว้ขณะเรียนปริญญาโทและเอกหรือที่ทำงานเดิม มาทำต่อและเขียนบทความเผยแพร่ สามารถทำได้หรือไม่?

คำถาม10: กรณีใดที่ผลการวิจัยต้องได้รับการรับรองจริยธรรมการวิจัยในมนุษย์ จึงสามารถใช้เผยแพร่ในบทความได้?

Q & A