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Research Integrity Workshop

Faculty of Science & Engineering

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Research Integrity – Many Topics

- Scientific integrity
- Human subjects
- Privacy – lots of different types
- Data protection
- Professional ethics
- Intellectual property
- Scientific misconduct
- .....

Building Blocks of Science

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- **Honesty** - Scientists depend upon the truthfulness of colleagues
  We build discoveries on the work of others;
  If that work is false, our discoveries fall and we must start again.
  The great success of science in our time is based on honesty.
- **Community** - scientists do virtually nothing alone;
  we exchange ideas in frenzies of excitement;
  we design and perform experiments together;
  we take pleasure in discoveries, no matter who has made them;
  we give credit where it is due.
- **Commitment** - We love the purposes of science
  we love the practice of science,
  we love to teach the lore of science.
  These passions give us gratification.
  And they inspire us to do our best - even to exceed ourselves.
- **Courage** - Most of the great discoveries in science come from bold acts of the imagination, intellectual daring of the highest order.

Integrity of Science

- **Each of us is responsible for our own actions**.
- Choices about technical matter may have moral implications.
- Studies link moral reasoning to moral behaviour.
- Formal education promotes ethical reasoning.
- Scientists are likely to encounter new moral problems that have not been analysed and resolved, so practice in moral reasoning will allow scientists to develop strategies for recognising, approaching and resolving ethical problems.
- Learning about research ethics serves a function for those scientists who already wish to be ethical researchers; it does not teach a scientist why (s)he should be moral.
- Some professions (e.g. IT, Engineering, Medicine) have explicit codes of conduct; scientists tend to refer to sets of values, traditions and standards.

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As a Scientist you:

- usually know what you ought to do when a moral question arises in research;
- probably don't as a rule reflect on why a particular action is good or bad;
- realise that ignorance of an existing rule or law does not exempt you from the consequences if you break it;
- may face moral problems not anticipated by your discipline's existing values, traditions and standards;

Integrity of Research at Queen Mary

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3. Integrity

3.1 Academic staff, research staff, visiting academics and research students should be honest in respect of their own actions in research and in their responses to the actions of other researchers. This applies to all research work, including experimental design, generating and analysing data, applying for funding, publishing results, recognising any real or potential conflicts of interest and acknowledging the direct and indirect contribution of colleagues, collaborators and any others involved in the research.

Reference: Queen Mary Guidelines on Good Practice in Research.

Plagiarism

Presenting someone else's work as one's own irrespective of intention.

Extensive quotations; close paraphrasing;

Copying from the work of another person,

Using the ideas of another person without acknowledgement

All constitute plagiarism.

Reference: Queen Mary Academic Regulations

Avoid Plagiarism - Use Referencing

- Reference: used when your work contains another's words / ideas Ensures reader can identify and locate original source.
- Quotation marks: used If you quote directly from another person Reference the quote.
- Paraphrasing: put another's work into different words but with the same meaning – you must reference the work.
- If you use another person's ideas, findings or research (ie facts they have established) in your work you must reference the work.

Reference: Queen Mary Academic Registry and Council Secretariat:
Plagiarism – ten key points

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Scientific Misconduct

Queen Mary's definition of Scientific Misconduct

- **Piracy** - the deliberate exploitation of ideas from others without proper acknowledgement;
- **Plagiarism** - the copying or misappropriation of ideas (or their expression), text, software or data (or some combination thereof) without permission and/or due acknowledgement;
- **Misrepresentation** - deliberate attempt to represent falsely or unfairly the ideas or work of others, whether or not for personal gain or enhancement;
- **Fraud** - deliberate deception (which may or may not include the invention or fabrication of data).

Reference: Queen Mary Guidelines on Good Practice in Research

Reporting Scientific Misconduct

- One of the most difficult situations that a researcher can encounter is to see or suspect that a colleague has violated the ethical standards of the research community.
- Easy to find excuses to do nothing
- Someone witnessing misconduct has an obligation to act.
- Reporting suspected misconduct is shared and serious responsibility of all members of the academic community.
- Any person who suspects scientific misconduct is obliged to report the allegation to a dean or to another senior University Administrator.

Reference: Gunsalus (1998)

Perspectives on Reporting Scientific Misconduct

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Misconduct can:

- Seriously impact research - yours, a colleague's, your group's
- Injure reputations of scientists and their institutions
- Shake public confidence in the integrity of science
- Result in counter-productive institutional/governmental regulations

Reporting misconduct is:

- An ethical obligation
- Not easy
- If mishandled, can damage stakeholders

Note:

- There may be different explanations to what you perceive
- Reprisals sometimes occur
- If your allegation is judged malicious or reckless you may be charged with scientific misconduct.

Reference: Queen Mary Procedure for Investigating Allegations of Misconduct in Academic Research (2000), Gunsalus, C.K. (1998)

JACS JOURNAL OF THE AMERICAN CHEMICAL SOCIETY
Retraction
pubs.acs.org/JACS

Retraction of Mechanically Facilitated Retro [4 + 2] Cycloadditions

Kelly M. Wiggins, Jay A. Syrett, David M. Haddleton, and Christopher W. Bielawski*

J. Am. Chem. Soc., **2011**, *133*, 7180−7189. DOI:10.1021/ja201135y

Based on an investigation conducted by The Office of Research Integrity at The University of Texas at Austin, it was determined that the data and scientific conclusions of this article are unreliable as a result of scientific misconduct by one of the co-authors affiliated with the University at the time of its publication. The authors retract this article accordingly.

JACS JOURNAL OF THE AMERICAN CHEMICAL SOCIETY
Retraction
pubs.acs.org/JACS

Retraction of Mechanical Reconfiguration of Stereoisomers

Kelly M. Wiggins, Todd W. Hudnall, Qilong Shen, Matthew J. Kryger, Jeffrey S. Moore, and Christopher W. Bielawski*

J. Am. Chem. Soc. **2010**, *132*, 3256−3257. DOI: 10.1021/ja910716s

Based on an investigation conducted by The Office of Research Integrity at The University of Texas at Austin, it was determined that the data and scientific conclusions of this article are unreliable as a result of scientific misconduct by one of the co-authors affiliated with the University at the time of its publication. The authors retract this article accordingly.

JACS JOURNAL OF THE AMERICAN CHEMICAL SOCIETY
Retraction
pubs.acs.org/JACS

Retraction of Mechanical Activation of Catalysts for C−C Bond Forming and Anionic Polymerization Reactions from a Single Macromolecular Reagent

Andrew G. Tennyson, Kelly M. Wiggins, and Christopher W. Bielawski*

J. Am. Chem. Soc. **2010**, *132*, 16631−16636. DOI: 10.1021/ja107620y

Based on an investigation conducted by The Office of Research Integrity at The University of Texas at Austin, it was determined that the data from the polymer chain scission kinetic analyses were fabricated by one of the co-authors affiliated with the University at the time of its publication. Although the other data in the article and overall conclusions are authentic, the scientific conclusions specifically derived from the fabricated data are unreliable. The authors retract this article accordingly.

JOC *The Journal of Organic Chemistry*
Retraction
pubs.acs.org/joc

Construction of 3-(Picolinoyl)indolizines: Rh(III)-Catalyzed Cascade Reactions of 2-Vinylpyridines

Zhen Wang* and Tiantian Han

J. Org. Chem. **2014**

Supporting Information

The Note "Construction of 3-(Picolinoyl)indolizines: Rh(III)-Catalyzed Cascade Reactions of 2-Vinylpyridines" published as a Just Accepted Manuscript on December 3, 2014, was retracted by the Editor-in-Chief of *The Journal of Organic Chemistry* after discovering a portion of the work is not reproducible. Additionally, the paper, based primarily on Ph.D. thesis research, was published without the acknowledgement or knowledge of the corresponding author's research advisor.

ASSOCIATED CONTENT

Supporting Information

The original article PDF is retained as Supporting Information. This material is available free of charge via the Internet at http://pubs.acs.org.

Examples of Scientific Misconduct

Hyung-In Moon, a South Korean plant compound researcher made up email addresses so he could do his own peer review.

35 papers retracted as a result.

http://retractionwatch.wordpress.com/2012/09/17/retraction-count-for-scientist-who-faked-emails-to-do-his-own-peer-review-grows-to-35/

Top 10 Retracted papers by citation count

https://retractionwatch.com/the-retraction-watch-leaderboard/top-10-most-highly-cited-retracted-papers/

Article	Year of retraction	Citations before retraction	Citations after retraction	Total cites
1.Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. N Engl J Med April 4, 2013 Estruch R, Ros E, Salas-Salvado J, Covas MI, Corella, D, Aros F, Gomez-Gracia E, Ruiz-Gutiérrez V, Fiol M, Lapetra J, Lamuela-Raventos RM, Serra-Majem L, Pinto X, Basora J, Munoz MA, Sorli JV, Martinez JA, Martinez-Gonzalez MA, et al., for the PREDIMED Study Investigators	2018	1895	371	2266
2. Visfatin: A protein secreted by visceral fat that mimics the effects of insulin. SCIENCE, JAN 21 2005 Fukuhara A, Matsuda M, Nishizawa M, Segawa K, Tanaka M, Kishimoto K, Matsuki Y, Murakami M, Ichisaka T, Murakami H, Watanabe E, Takagi T, Akiyoshi M, Ohtsubo T, Kihara S, Yamashita S, Makishima M, Funahashi T, Yamanaka S, Hiramatsu R, Matsuzawa Y, Shimomura I.	2007	228	1096	1324
3. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. LANCET, FEB 28 1998 Wakefield AJ, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, Berelowitz M, Dhillon AP, Thomson MA, Harvey P, Valentine A, Davies SE, Walker-Smith JA	2010	633	669	1302

Top 10 Retracted papers by citation count - continued

https://retractionwatch.com/the-retraction-watch-leaderboard/top-10-most-highly-cited-retracted-papers/

Article	Year of retraction	Citations before retraction	Citations after retraction	Total cites
1. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. N Engl J Med April 4, 2013 Estruch R, Ros E, Salas-Salvado J, Covas MI, Corella D, Aros F, Gomez-Gracia E, Ru Lai Pir Ma for	2018	1895	371	2266
2. fat ins				
3. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in	2010	633	669	1302

Famous paper by Andrew Wakefield et al linking vaccines & autism
General Medical Council: “dishonest research”
Paper led to measles outbreaks around the world incl. UK

Contributes to continuing mistrust in vaccination programmes including potential coronavirus vaccine

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31324-6/fulltext

COMMENT | VOLUME 395, ISSUE 10240, P1820, JUNE 13, 2020

Retraction—Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis

Mandeep R Mehra • Frank Ruschitzka • Amit N Patel

Published: June 05, 2020 • DOI: https://doi.org/10.1016/S0140-6736(20)31324-6 •

Reference

Article Info

Linked Articles

After publication of our *Lancet* Article,[1] several concerns were raised with respect to the veracity of the data and analyses conducted by Surgisphere Corporation and its founder and our co-author, Sapan Desai, in our publication. We launched an independent third-party peer review of Surgisphere with the consent of Sapan Desai to evaluate the origination of the database elements, to confirm the completeness of the database, and to replicate the analyses

Florida analyst who clashed with governor over Covid data faces arrest

Rebekah Jones, who clashed publicly with Ron DeSantis in a dispute over data manipulation, said she would turn herself in

▲ On Sunday, Florida reported 11,093 new cases of coronavirus for a total of 1,571,279, and 135 deaths, bringing that toll to 24,515. Photograph: Michele Eve Sandberg/Rex/Shutterstock

Rebekah Jones, the founder of Florida's coronavirus database who has clashed publicly with Governor Ron DeSantis in a dispute over data manipulation, said she would surrender on Sunday after a warrant was

Accusations of data manipulation in US 2020 election

https://www.theguardian.com/us-news/2021/jan/17/florida-rebekah-jones-covid-data-analyst-arrest-warrant

Food for Thought

"In the cases of scientific fraud that I have looked at, three motives, or risk factors have always been present. In all cases, the perpetrators:

1. were under career pressure;
2. knew, or thought they knew what the answer would turn out to be if they went to all the trouble of doing the work properly, and
3. were working in a field where individual experiments are not expected to be precisely reproducible."

Reference: Goodstein, David (1996)

What would you do?

Ellie's supervisor sent her a manuscript to referee for a journal. It was an interesting paper right in the area of Ellie's research and described experiments that she hadn't previously thought of doing.

Ellie recommended that the manuscript was rejected and quickly set up the same experiments.

Is this a problem?

What would you do? Part 2

Peter was presenting a poster at a conference. Several people came up to discuss the poster with him and one person made some really useful suggestions about what he might do as a follow-up study.

Would it be research misconduct if Peter was to use this person's ideas in his research?

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Final Remarks

Important to Remember

- Research Integrity may be obvious and seem like 'common sense’,
- May be seen as restrictive of innovative research
- But a growing number of organisations and institutes worldwide are working towards a cultural change in research practices.
- For Queen Mary, Research Integrity & Ethics are extremely important

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Thank You

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