



EMBO Forum on Responsible Research

Sandra Bendiscioli
EMBO Policy



Courtesy of EMBO Member
François Nédélec



EMBO FORUM ON Responsible Research

4 September 2025

Institute for Cancer Research,
Radium Hospital

K-Building, Auditorium

One day of talks and
discussions on scientific
integrity and good
practices in the life
sciences for postdocs
and PIs.

Registration

Please register at:
<https://nettskjema.no/a/531427>



09:30-09:35	Welcome address Anne Simonsen, Professor, Group leader, CanCell PI - UiO / OUS
09:35-09:45	Research integrity in the context of the University of Oslo Vetle Nordli Syverud, Senior Adviser - Office of research and innovation, University of Oslo
09:45-10:40	Research integrity: what is it and why should we care? Sandra Bendiscioli, Senior Policy Officer, EMBO

10:40-11:15	Research integrity and transparency in publishing Bernd Pulverer, Head of Publications, EMBO Press
11:15-11:40 <i>Coffee Break</i>	
11:40-12:10	Supervisors' responsibilities Sandra Bendiscioli, EMBO
12:10-13:00	Open Science: How to make it happen Bernd Pulverer, EMBO Press
13:00-14:00 <i>Lunch</i>	
14:00-14:45	Trust in science in the AI era Bernd Pulverer, EMBO Press
14:45-15:30	General discussion Anne Simonsen, Professor, Group leader, CanCell PI - UiO / OUS



EMBO: Promoting excellence in the life sciences

And helping build a research environment where scientists can achieve their best work.



EMBO Membership

More than 2,200 leading life scientists in Europe and beyond



Programmes and activities

EMBO Fellowships, EMBO Young Investigator Network, Courses and workshops, Global activities and **Policy**



Publishing

The EMBO Journal, EMBO Reports, Molecular Systems Biology, EMBO Molecular Medicine, Life Science Alliance, Review Commons

European Molecular Biology Conference (EMBC)

32 Member States in Europe

**Global partners: India,
Singapore, Taiwan, Chile,
Japan**



EMBO Programmes

Norway joined in 1970

**12 EMBO Members in
Norway**

**9 EMBO Fellows in
Norway**

EMBC Delegates

Inge Jonassen, University of Bergen
Line Grønning-Wang, The Research Council of
Norway

EMBO Fora on Responsible Research



- **Radium Hospital**, Oslo, Norway, 2025
- **Pasteur Institute**, Paris, France, 2025
- **CEITEC MUNI**, Brno, Czech Republic, 2025
- **Valrose Institute of Biology**, France, 2025
- **University of Montenegro**, Podgorica, 2023
- **VIB–KU Leuven**, Belgium, 2023
- **Biomedical Research Center**, Bratislava, Slovakia, 2023
- **Weizmann Institute of Science**, Rehovot, Israel, 2023
- **Czech Academy of Sciences**, Prague, Czech Republic, 2023
- **Life Sciences Center, Vilnius University**, Lithuania, 2022
- **Ruđer Bošković Institute**, Zagreb, Croatia, 2022
- **Vienna BioCenter**, Austria, 2022
- **Institute for Research in Biomedicine (IRB)**, Barcelona, Spain, 2019
- **Izmir Biomedicine and Genome Centre (IBG)**, Turkey, 2019
- **Nencki Institute of Experimental Biology**, Poland, 2019
- **University of Debrecen**, Hungary, 2019
- **EPFL**, Switzerland, 2018
- **Jozef Stefan Institute**, Ljubljana, Slovenia, 2018
- **University of Patras**, Greece, 2018
- **University of Iceland**, Reykjavik, 2018
- **Academia Sinica**, Taipei, Taiwan, 2017
- **University of Seville**, Spain, 2017
- **Institut Curie**, Paris, France, 2017
- **University of Milan**, Italy, 2017
- **i3S**, Porto, Portugal, 2017
- **Institute of Biotechnology**, Helsinki, Finland, 2016
- **National Centre of Biotechnology**, Madrid, Spain, 2016

Supervisors

PIs

Readers

Data curators

Post-docs

Authors

Reviewers

your responsibilities

Heads of
depts.

Editors

Statisticians

Lab
managers

PhD
students

Heads of
institutes

Funders

Scientific
academies

our responsibilities

Scientific
organizations

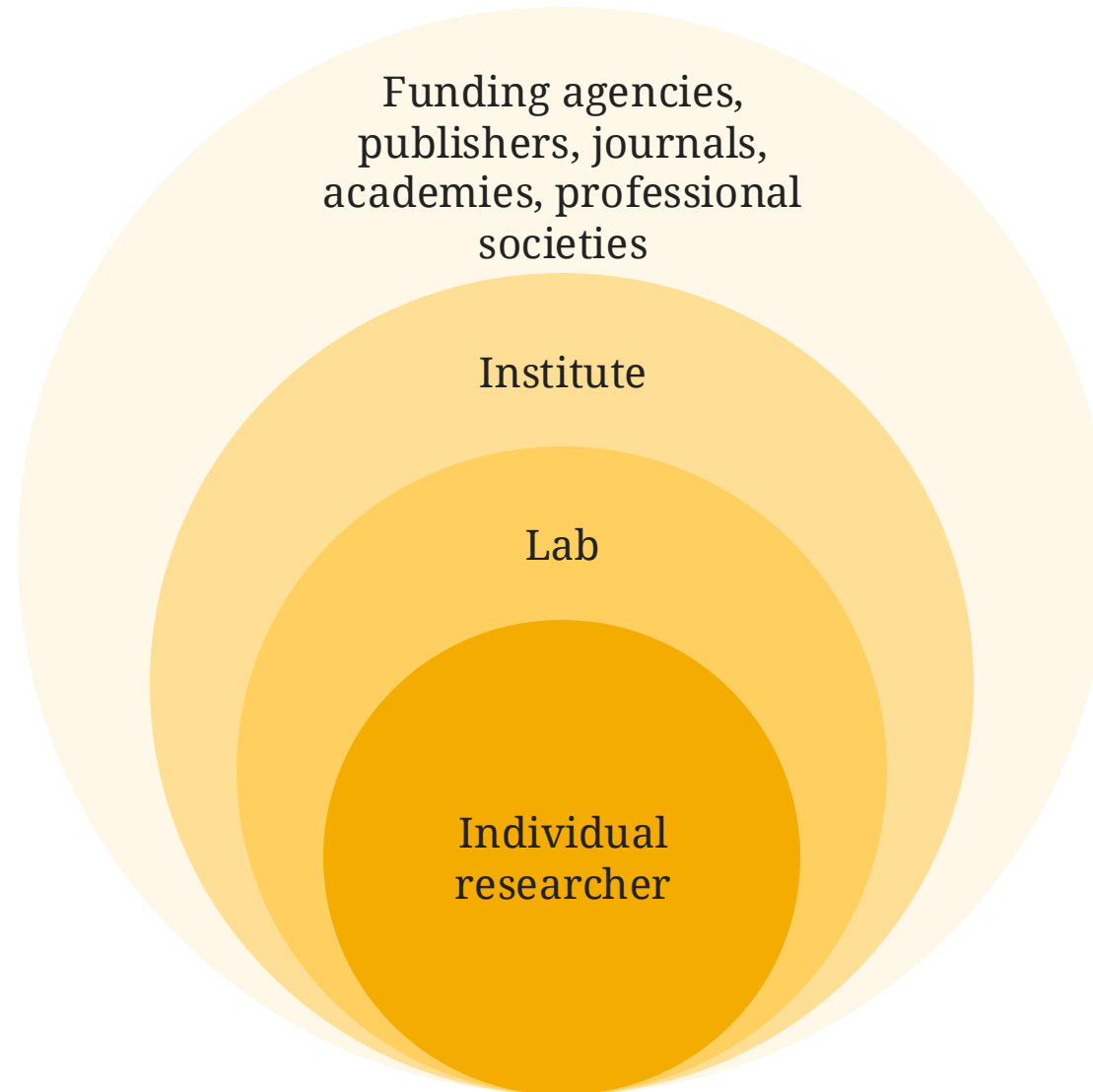
Publishers

Universities

Research organizations

Policy makers

A collective responsibility



What does it mean to be responsible?

In the context of *responsible conduct of research*, being responsible is a **demonstrable capability**.

- It is NOT a moral state.
- It refers to a **set of skills** that can be developed through:
 - Training
 - Supervision and mentoring
 - And is supported by appropriate policies



Research integrity

What is it and why should we care?

Sandra Bendiscioli, Senior Policy Officer, EMBO
Institute for Cancer Research, Radium Hospital, Oslo
4 September 2025

Research integrity

- The use of *honest* and *verifiable methods* in **proposing, performing, and evaluating** research,
- **Reporting** results with particular attention to adherence to *rules, regulations, guidelines*,
- **Following commonly accepted professional codes or norms.**

Office of Research Integrity, USA

Principles of research integrity

RELIABILITY in ensuring the quality of research, reflected in the design, the methodology, the analysis and the use of resources.

HONESTY in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way.

RESPECT for colleagues, research participants, society, ecosystems, cultural heritage and the environment.

ACCOUNTABILITY for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts.



Research Integrity in Norway

Legal framework: Research Ethics Act (2017)

Institutional responsibilities:

- Provide training in best practice
- Establish integrity committees
- Develop internal guidelines

Five National Research Ethics Committees (FEK):

Provide national guidelines and support

National commission for the investigation of research misconduct: advisory and investigative role



Exclusive: investigators found plagiarism and data falsification in work from prominent cancer lab

The New York Times

Stem Cell Research Papers Are Retracted



Haruko Obokata, the lead scientist, at a news conference in April after questions were raised.
Kimimasa Mayama/European Pressphoto Agency



Quality of scientific papers questioned as academics 'overwhelmed' by the millions published

The Guardian

Widespread mockery of AI-generated rat with giant penis in one paper brings problem to public attention

nature International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue | Archive | Audio & Video | For

Archive > Volume 523 > Issue 7559 > News > Article

NATURE | NEWS

US vaccine researcher sentenced to prison for fraud

The case of Dong-Pyou Han illustrates the uneven nature of penalties for scientific misconduct.

Sara Reardon

01 July 2015 | Updated: 01 July 2015

The Economist

Menu Weekly edition Search

Science & technology | Neuroscience

Critical research on the causes of Alzheimer's may have been falsified

Scientists could have been led down blind alleys for more than a decade

The Economist

Washington's lawyer surplus
How to do a nuclear deal with Iran
Investment tips from Nobel economists
Junk bonds are back
The meaning of Sachin Tendulkar

HOW SCIENCE GOES WRONG

NATURE | NEWS

Leading plant biologist found to have committed misconduct

CNRS researcher Olivier Voinnet suspended for two years after manipulated images discovered in his work.

Declan Butler

10 July 2015

HIGHER EDUCATION

Stanford investigates its president for possible research misconduct

University looking into allegations that papers the neuroscientist co-authored might contain altered images



By Susan Svrluga

Updated December 2, 2022 at 11:14 a.m. EST | Published December 1, 2022 at 4:27 p.m. EST

The Washington Post
Democracy Dies in Darkness

Why should we care?
What are the consequences?



Most highly cited retracted papers – Retraction Watch

	Title	Year of retraction	Cites before retraction	Cites after retraction
1	Pluripotency of mesenchymal stem cells derived from adult. Nature, JUNE 20, 2002 , <i>Jiang Y et al.</i>	2024	4491	21
2	Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. International Journal of Antimicrobial Agents. MARCH 20, 2020 . <i>Gautret P et al.</i>	2024	3177	12
3	6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. Lancet, JAN 8, 2021 , <i>Huang C et al.</i>	2023	2272	757
4	Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. N Engl J Med, APR 4 2013 , <i>Estruch R et al.</i>	2018	1787	884
5	A specific amyloid-β protein assembly in the brain impairs memory. Nature. MARCH 16, 2008 , <i>Lesné S et al.</i>	2024	2359	25
6	Predictive Validity of a Medication Adherence Measure in an Outpatient Setting. The Journal of Clinical Hypertension, MAY 2, 2008 , <i>Morisky DE et al.</i>	2023	1932	213
7	MicroRNA signatures of tumor-derived exosomes as diagnostic biomarkers of ovarian cancer. Gynecologic Oncology, JUNE 25, 2008 , <i>Taylor DD et al.</i>	2023	1868	72
8	Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. Lancet, FEB 28 1998 , <i>Wakefield AJ et al.</i>	2010	734	1007

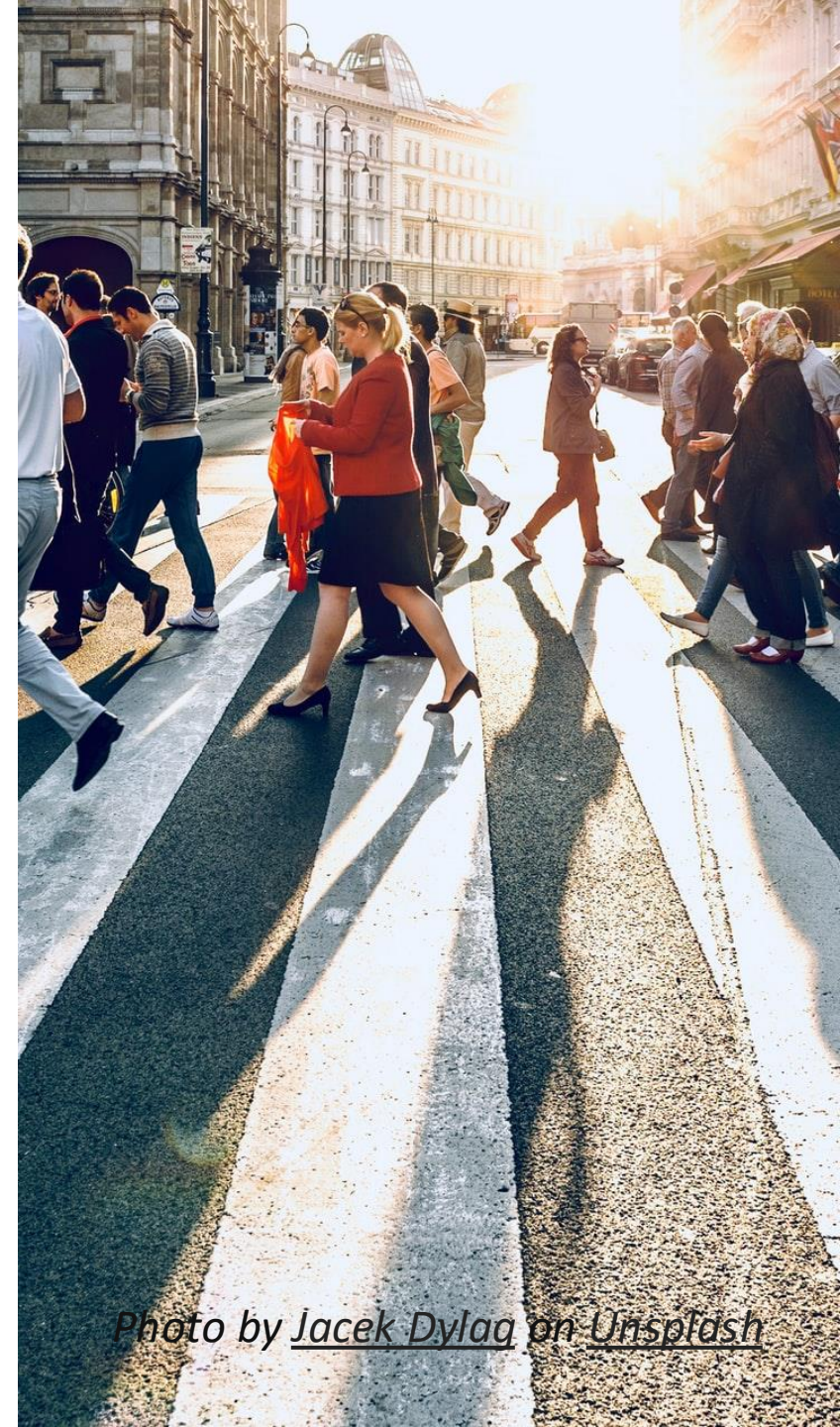
Consequences for science

- Incorrect/useless results added to the scientific record
- Waste of resources
- Reduces public trust
- Endangers public funding



Consequences for society

- Endangers patients and threatens people's lives
- Negative environmental impact
- Negative impact on policies and legislation
- Waste of public resources



Research misconduct. What is it?

Research misconduct

Lying

Cheating

Stealing

Fabrication

Falsification

Plagiarism

in *proposing, performing* or *reviewing* research
or in *reporting* research results.

Office of Research Integrity, USA

Scientific misconduct means falsification, fabrication, plagiarism and other serious breaches of recognised norms of research ethics, which have been committed intentionally or with gross negligence in the planning, execution or reporting of research.

Research Ethics Act, Norway

Research misconduct

Falsification

Making up
data or results

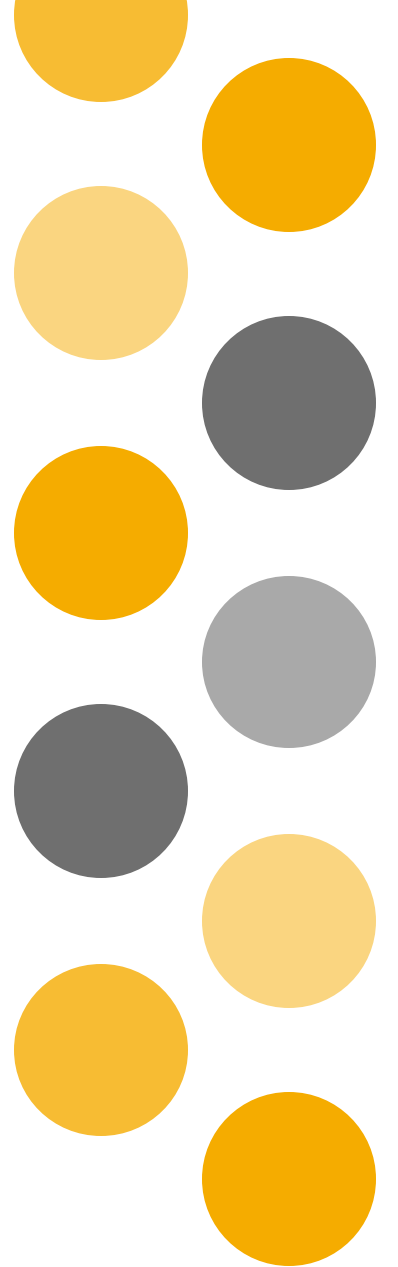
Fabrication

Manipulating
or omitting
data or results

Plagiarism

Appropriation
of others'
work without
giving proper
credit.

Also self-
plagiarism!



Research misconduct

Questionable research practices

A wide range of practices that compromise the proper professional conduct of research or the accuracy of the research record.

Fabrication

Making up of data or results.

Falsification

Omission or modification of data or results.

Plagiarism

Appropriation of the work of others—words, text, data, results, ideas—without giving appropriate credit.

Also self-plagiarism!

Questionable research practices. Examples

Planning	- Biased study design: selection of methods/controls that favour wished results - Too small sample size - Failure to disclose conflicts of interest
Conducting	- Inadequate procedures for recording or storing data; sloppiness in keeping lab notebooks - Reuse of controls from other experiments - Inadequate supervision of lab members
Interpreting	- Inappropriate statistical methods - Exclusion of outliers and negative results without justification - Adding data points to a curve - Unjustified or unsupported conclusions
Publishing	- Statistical tricks to obtain statistical significance (P-hacking) - Misattribution of authorship - Unjustified modification, reuse, relabeling of images - Salami slicing
Reviewing	- Failure to maintain confidentiality - Stealing ideas or text from a manuscript - Failure to declare conflicts of interest - Conscious bias toward or against colleagues or fields

Adapted from N. Steneck

Two cases of research misconduct



Case 1: STAP cells

Study Says New Method Could Be a Quicker Source of Stem Cells

 Share full article



The New York Times

By **Andrew Pollack**

Jan. 29, 2014

A surprising study has found that a simple acid bath might turn cells in the body into stem cells that could one day be used for tissue repair and other medical treatments.

The technique, performed only with cells from mice, might turn out to be a quicker and easier source of multipurpose stem cells than methods now in use.

Article | Published: 29 January 2014

RETRACTED ARTICLE: Stimulus-triggered fate conversion of somatic cells into pluripotency

[Haruko Obokata](#) , [Teruhiko Wakayama](#), [Yoshiki Sasai](#), [Koji Kojima](#), [Martin P. Vacanti](#), [Hitoshi Niwa](#), [Masayuki Yamato](#) & [Charles A. Vacanti](#) 

[Nature](#) 505, 641–647 (2014) | [Cite this article](#)

543k Accesses | 190 Citations | 2999 Altmetric | [Metrics](#)

Stem cell 'major discovery' claimed

© 29 January 2014



By **James Gallagher**

Health and science reporter, BBC News

Stem cell researchers are heralding a "major scientific discovery", with the potential to start a new age of personalised medicine.

Letter | Published: 29 January 2014

RETRACTED ARTICLE: Bidirectional developmental potential in reprogrammed cells with acquired pluripotency

[Haruko Obokata](#) , [Yoshiki Sasai](#) , [Hitoshi Niwa](#), [Mitsutaka Kadota](#), [Munazah Andrabi](#), [Nozomu Takata](#), [Mikiko Tokoro](#), [Yukari Terashita](#), [Shigenobu Yonemura](#), [Charles A. Vacanti](#) & [Teruhiko Wakayama](#) 

[Nature](#) 505, 676–680 (2014) | [Cite this article](#)

234k Accesses | 1566 Altmetric | [Metrics](#)

Case 1: Data issues & investigation

Readers found:

- Images wrongly labeled
- Electrophoresis gel lanes switched
- Images taken from her PhD thesis
- Nobody could repeat the experiments

Summary of findings from RIKEN:

- Data and image manipulation
- Data falsification
- Extreme sloppiness in record keeping

Consequences:

- Found guilty of misconduct and fired
- Papers retracted
- Research center dismantled and reorganized
- Supervisor committed suicide

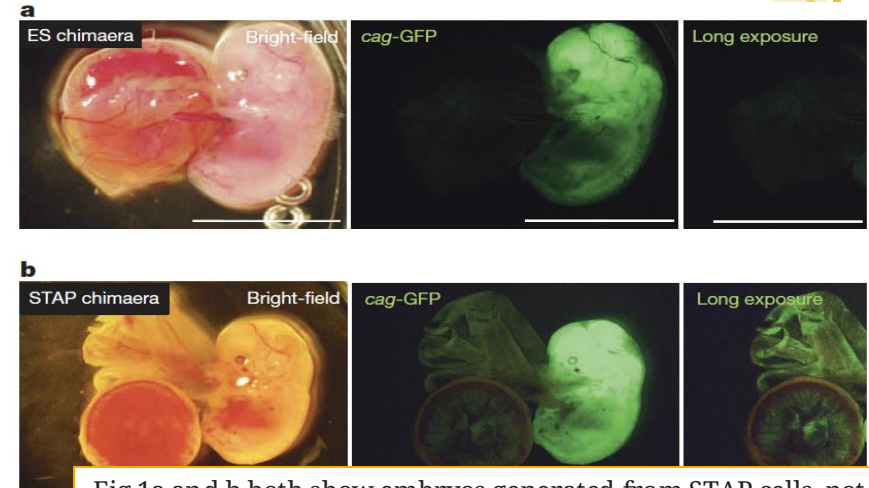
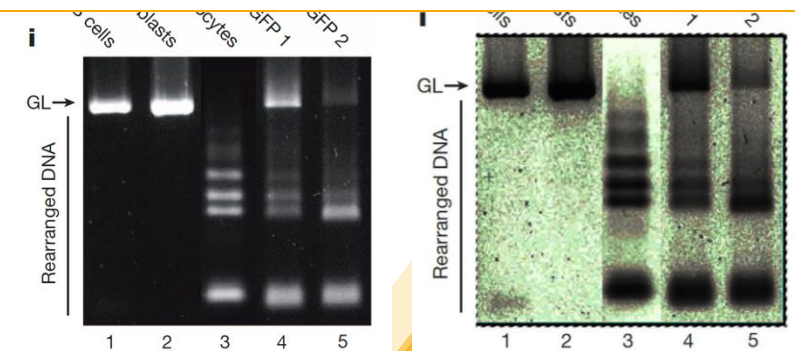


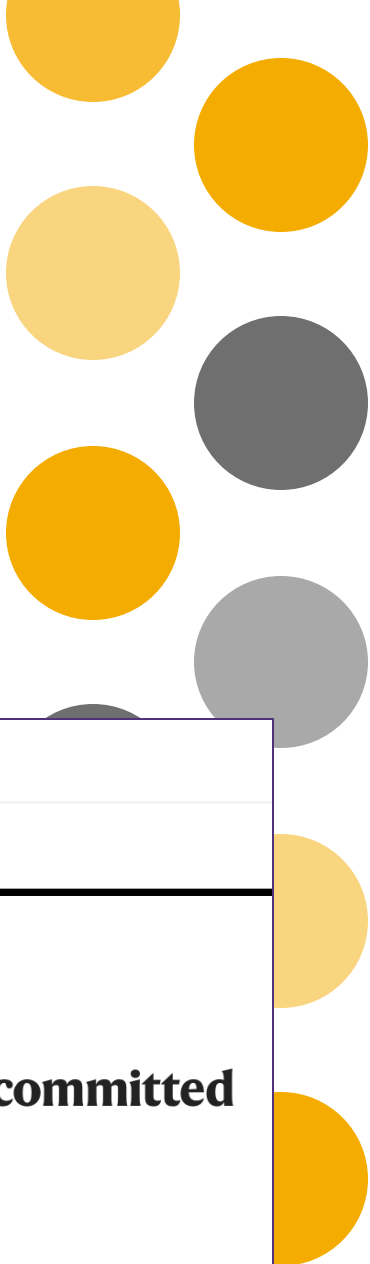
Fig 1a and b both show embryos generated from STAP cells, not a comparison of ES- and STAP-derived chimaeric embryos as indicated in the legend

Image of an electrophoresis gel showing a genetic analysis, Figure 1i appeared spliced together



Case 2: Plant science

- Well-respected plant scientist, known for his influential work on **RNA interference**
- Received numerous awards and prizes
- 2014: PubPeer comments



nature

Explore content ▾ About the journal ▾ Publish with us ▾

[nature](#) > [news](#) > article

News | Published: 10 July 2015

Leading plant biologist found to have committed misconduct

[Declan Butler](#)

[Nature](#) (2015) | [Cite this article](#)

1841 Accesses | 3 Citations | 137 Altmetric | [Metrics](#)

Case 2: Data issues & investigations

Summary of issues:

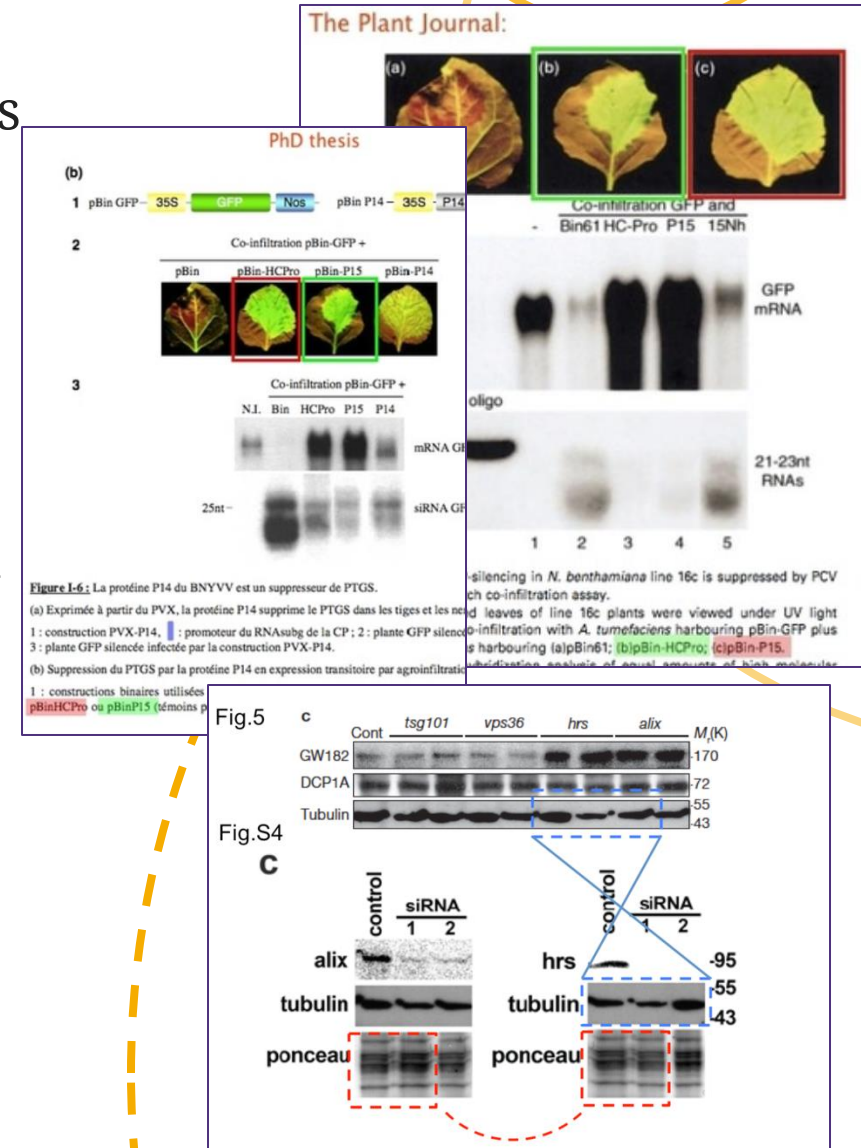
- Duplicated controls between figures and papers
- Misrepresentation of Western blots
- Inaccurate labelling
- Unjustified beautifications of figures

Conclusion of investigations:

- CNRS: misconduct, but not serious
- ETH: Not misconduct “conducted properly” but “published incorrectly.”
- Breached duty of care of lab members
- Post-doc found guilty in later investigation

Consequences

- 8 retractions and more than 20 corrections
- Funding ban
- Labs closed temporarily
- EMBO Gold Medal revoked



Consequences for individuals

- Job loss or suspension
- Fewer possibilities to get subsequent funding
- Damaged reputation
- Mental health consequences
- Monetary fines and/or prison (US)



How common is misconduct?



How often does misconduct occur?

OPEN ACCESS Freely available online



How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data

Daniele Fanelli*

INNOGEN and ISSTI-Institute for the Study of Science, Technology & Innovation, The University of Edinburgh, Edinburgh, United Kingdom

Science and Engineering Ethics (2021) 27:41
<https://doi.org/10.1007/s11948-021-00314-9>

ORIGINAL RESEARCH/SCHOLARSHIP



Prevalence of Research Misconduct and Questionable Research Practices: A Systematic Review and Meta-Analysis

Yu Xie^{1,2} · Kai Wang¹ · Yan Kong¹

Two meta-analysis studies of RM and QRPs

Research misconduct (FFP)



Questionable research practices (QRPs)

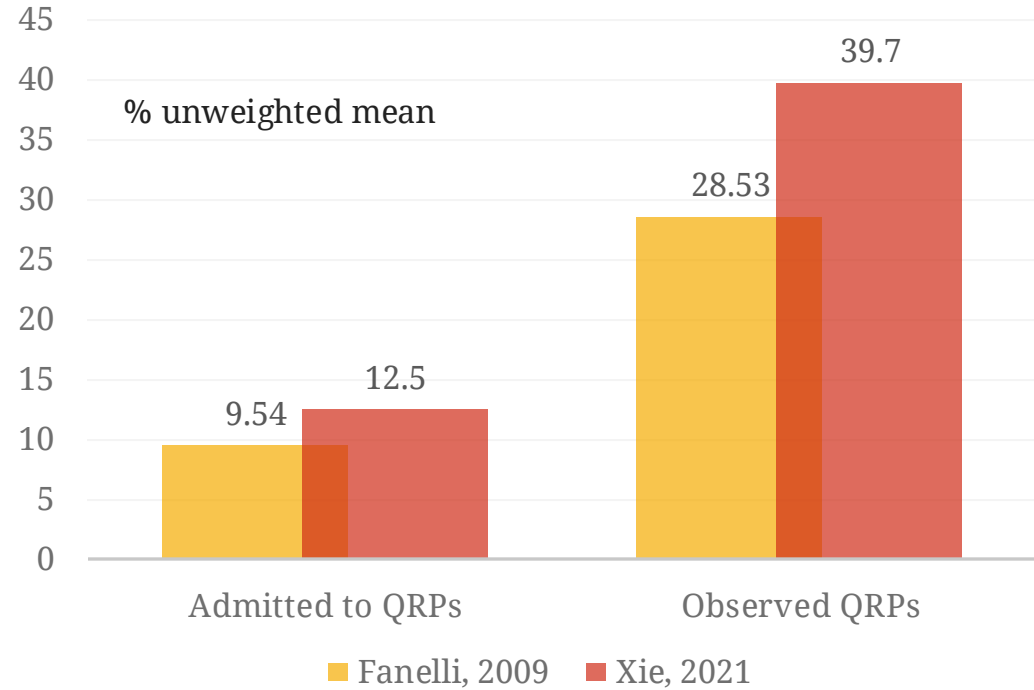


Image aberrations found in EMBO Press journals

EMBO classification	Image Manipulation	Action	%*
I	cosmetic & mistakes; source data & convincing author explanation	revision, no report	10
II	beautification & undeclared manipulation that changes conclusions; source data or new data	may revise, may reject, may report	0.4
III	undeclared manipulation with obfuscation & intent; no or misleading explanation; no or fake source data	reject and report	<0.2
Total			10.5

A thin line

Sloppiness

Mistakes

Non-compliance

Lack of oversight



Misconduct



What are the causes of misconduct?



Systemic factors creating negative incentives

- **High levels of competition** leading to poor quality research practices, less collaboration, headline chasing.
- **Funding: limited resources, short-term funding and strategically directed calls**, leading to a decrease in the time available to plan research, loss of creativity and innovation.
- **Assessment of researchers based mainly on quantitative metrics:** leading to pressure to publish in high-impact journals, 'publish or perish', authorship issues, lack of recognition for non-article outputs.
- **Career progression and workload**—high competition for jobs and funding and heavy workloads resulting in loss of creativity and innovation and decrease of time for research and to train new generations.

The findings of a series of engagement activities exploring

THE CULTURE OF SCIENTIFIC RESEARCH IN THE UK

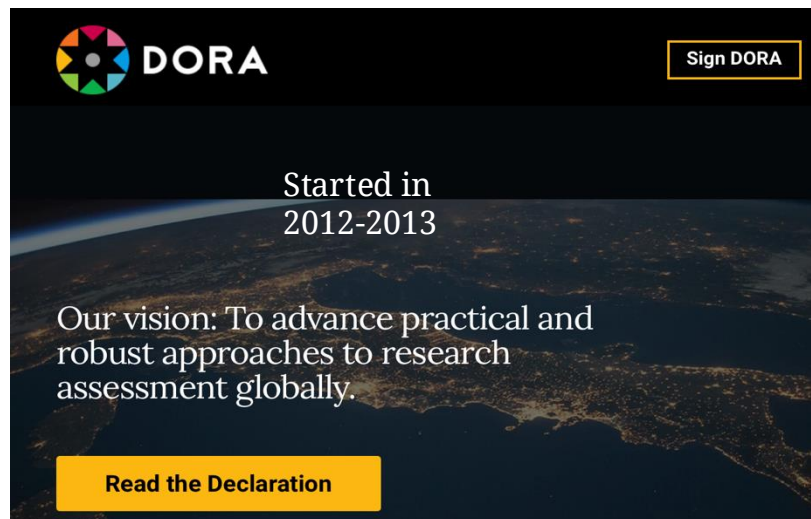
NUFFIELD
COUNCIL ON
BIOETHICS

Systemic factors creating negative incentives

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What can be done?

International initiatives



Published: [22 April 2015](#)

Bibliometrics: The Leiden Manifesto for research metrics

[Diana Hicks](#) ✉, [Paul Wouters](#), [Ludo Waltman](#), [Sarah de Rijcke](#) & [Ismael Rafols](#)

[Nature](#) **520**, 429–431 (2015) | [Cite this article](#)

29k Accesses | **1013** Citations | **2150** Altmetric | [Metrics](#)

The Hong Kong Principles for assessing researchers: Fostering research integrity

David Moher ✉, Lex Bouter, Sabine Kleinert, Paul Glasziou, Mai Har Sham, Virginia Barbour, Anne-Marie Coriat, Nicole Foeger, Ulrich Dirnagl

Published: July 16, 2020 • <https://doi.org/10.1371/journal.pbio.3000737>



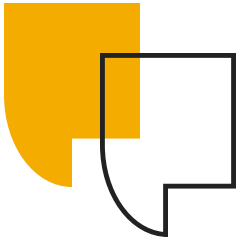
Coalition for Advancing Research Assessment



Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

Started in 2021

San Francisco Declaration on Research Assessment



Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual researcher's contributions, or in hiring, promotion, or funding decisions.



Coalition for Advancing Research Assessment (CoARA)

A **common vision** and a **commitment** for the assessment of research, researchers and research organisations:

- **Recognize the diverse outputs, practices and activities.**
- **Base assessment mainly on qualitative** judgement, for which **peer-review** is central, supported by **responsible use of quantitative indicators.**

More than 700 research organisations, funders, assessment authorities, professional societies have signed the agreement.

Preventing misconduct: Funders, academics, publishers

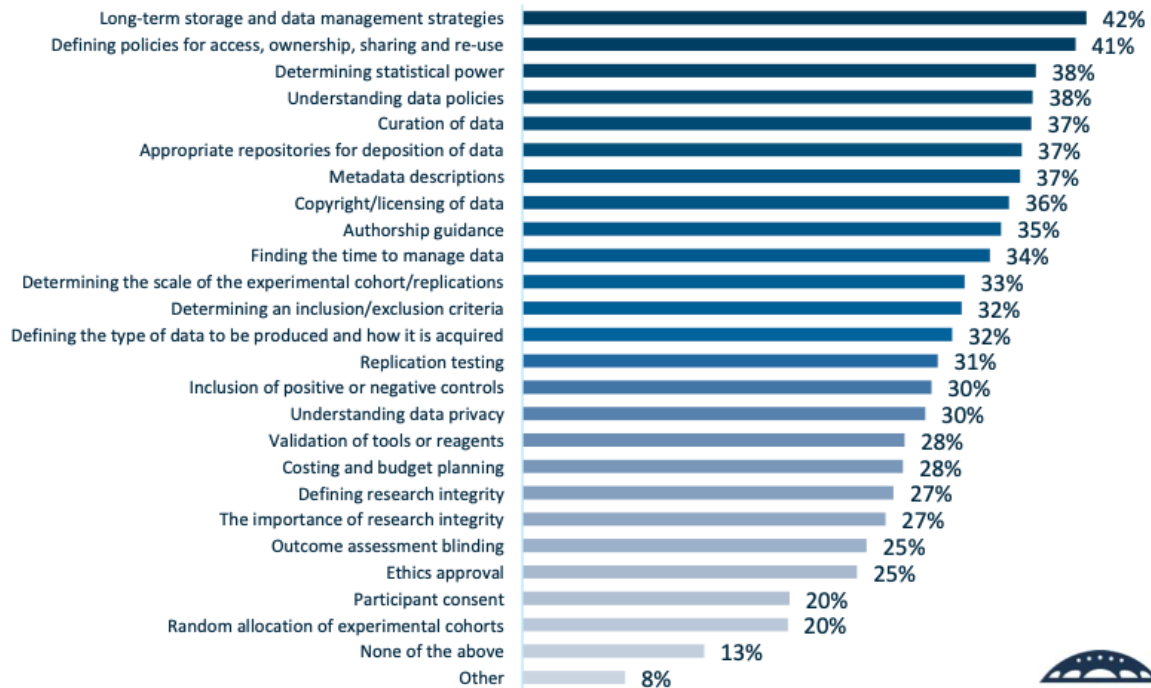
- Create codes and guidelines, set expectations for those who adopt them and those who don't
- Detail data management requirements
- Provide quality checklists at the publication stage
- Adopt responsible research assessment practices
- Promote open science practices

Preventing misconduct: Institutions

- Adopt and enforce codes and guidelines
- Train students and faculty in research integrity
- Describe best practices in data management
- Provide infrastructure for data management
- Give lab leaders training in mentorship
- Provide authorship policies
- Provide training in statistics, and area-specific technical skills

What kind of training?

Q. Which, if any, of the following topics regarding research integrity do you feel you would benefit from further training in? (n=821)



SPRINGER NATURE



- Long-term storage and data management strategies
- Defining policies for access, ownership sharing and re-use
- Determining statistical power
- Understanding data policies
- Curation of data
- Appropriate repositories for deposition of data
- Metadata descriptions
- Copyright/licensing of data
- Authorship guidance
-

Workplace climate

Perception of the work environment

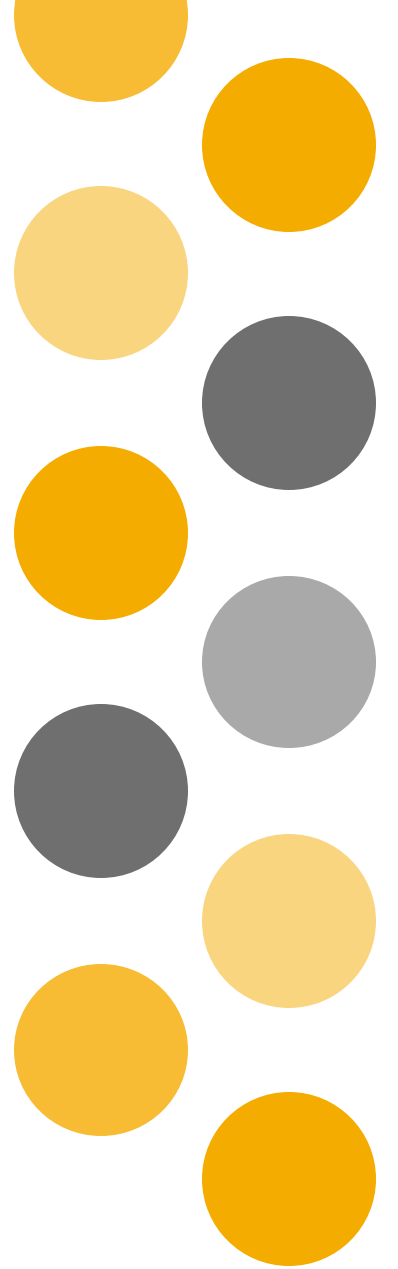
- Researchers are more likely to commit misconduct when policies on good research practices are lacking
- Poor workplace climate and undesirable research practices are correlated

- *US Survey of Organizational and Research Climate (SOuRCe)*



Preventing misconduct: Lab leaders

- Adhere to the codes and guidelines
- Demonstrate best practices
- In the mentor role, use mistakes as teaching moments
- Provide training to lab members
- Open door policy



Preventing misconduct: Individual researchers

- Read the codes and guidelines
- Identify the appropriate place to ask for advice
- Speak up if they see something
- Ask for guidance when unsure of best practices
- Use mistakes as training opportunities

