Research Misconduct

University of Milan, 23 February 2017

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Science Policy Programme Officer
EMBO
Singapore Statement on Research Integrity

PRINCIPLES

*Honesty* in all aspects of research

*Accountability* in the conduct of research

*Professional courtesy and fairness* in working with others

*Good stewardship* of research on behalf of others

http://www.singaporestatement.org
Research misconduct – Overview

✓ Why is it wrong?
✓ What is it?
✓ How common is it?
✓ Causes of misconduct
✓ How to foster responsible research
✓ Scenario and discussion
Why is misconduct wrong?

Consequences for science:

- Adds wrong or useless results to the scientific record
- Wastes resources
- Reduces public trust
- Endangers public funding
Why is misconduct wrong?

Consequences for society:

- Endangers people’s lives
- Endangers the environment
- Could impact negatively on policy and legislation
What is misconduct?

- **Fabrication**: Making up of data or results
- **Falsification**: Modification or omission of data or results
- **Plagiarism**: Appropriation of the work of others – words, text, data, results, ideas – without giving appropriate credit

Also **self-plagiarism**!
What is misconduct?

LYING, CHEATING, STEALING

in science
What is misconduct?

 behaviours that significantly compromise the proper professional conduct of research or the accuracy of the research record.

Epigeum, 2014
What is misconduct?

(adapted from N. Steneck)
Some BIG cases


**Olivier Voinnet**, plant science, France/CH, 2015: 8 papers retracted and 22 papers corrected for data and image manipulation, lack of appropriate controls. Funding ban, award revoked.

**Dong-Pyou Han**, HIV vaccine research, Iowa State University, 2014: NIH grant, data fabrication and falsification: fired, funding ban, sentenced to 5 years in prison and to refund 7 million USD.
Why is misconduct wrong?
Consequences for individual scientists

• End of a career/suspension from job/loss of job
• Decreased possibilities of subsequent funding
• Loss of prestige
• Depression
• Monetary fines (US)
• Prison (US)
• Discredit colleagues/other scientists
• Discredit universities/institutes
Helping Researchers Become More Effective Professionals

Using a career-coaching model, the P.I. Program offers personalized assessments, a group workshop, and post-workshop coaching calls to help researchers operate professionally in today's complex environments.

Upcoming Courses
• May 16-18, 2017 – St. Louis

http://integrityprogram.org
Professionalism and Integrity Program

The scientists’ explanations

- Lack of attention or oversight
- Unsure of rules/rules had changed
- Did not prioritize compliance

No conscious intent to cheat or break rules.

How common is misconduct?

How common is misconduct?

- **72%** observed *questionable research practices* by colleagues at least once.
- **14%** observed *fabrication or falsification* by colleagues at least once.
- **34%** admitted *questionable research practices* at least once.
- **2%** admitted *fabrication or falsification* of data or results at least once.

Causes of misconduct?

jobs
publish
incentives
competition
rewards
awards
grants
Factors contributing to pressure

• Research assessment
• Focus on IF of journals (but DORA!)
• Lack of recognition of peer-review activities, mentoring
• Incentives
• Deadlines
How to foster responsible research

Guidelines and codes!

Commissione per l’Etica della Ricerca e la Bioetica del CNR - www.cnr.it/it/ethics
Linee guida per l’integrità nella ricerca
How to foster responsible research

**RULES & REGULATIONS**

*In the EU, e.g.:

- Directive 2010/63/EU on the protection of animals used for scientific purposes.

- EU Regulation No 536/2014 on clinical trials on medicinal products for human use.
How to foster responsible research

In the pink boxes below, provide the page number(s) of the manuscript draft or figure legend(s) where the information can be located. Every question should be answered. If the question is not relevant to your research, please write NA (non applicable).

### Checklists!

**B- Statistics and general methods**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>1.a. How was the sample size chosen to ensure adequate power to detect a pre-specified effect size?</td>
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<td>1.b. For animal studies, include a statement about sample size estimate even if no statistical methods were used.</td>
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<td>2. Describe inclusion/exclusion criteria if samples or animals were excluded from the analysis. Were the criteria pre-established?</td>
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<tr>
<td>3. Were any steps taken to minimize the effects of subjective bias when allocating animals/samples to treatment (e.g. randomization procedure)? If yes, please describe.</td>
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<td>For animal studies, include a statement about randomization even if no randomization was used.</td>
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<tr>
<td>4.a. Were any steps taken to minimize the effects of subjective bias during group allocation or/and when assessing results (e.g. blinding of the investigator)? If yes please describe.</td>
<td></td>
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<tr>
<td>4.b. For animal studies, include a statement about blinding even if no blinding was done</td>
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How to foster responsible research

Do you know who your institutional responsible official is?

Be prepared in case you ever suspect research misconduct.

ORI, 2016
How to foster responsible research

Training

Research Skills online
Research training courses when and where you need them

Research Integrity - UK/International version

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Access</th>
<th>Your grade</th>
<th>Certificate</th>
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How to foster responsible research

Workplace climate is important

There is a correlation between poor work climate and undesirable research practices.

*Martinson et al., Sci Eng Ethics, 2013*
How to foster responsible research

DUTY TO REPORT
How to foster responsible research

In your team foster

- Discussion of dilemmas
- Constructive criticism
- Scientific culture of openness
- Be a good citizen! (in your community)
THE END