

**Incidents in laboratories : What was wrong with each case?**

Case 1

Mr. A is a Ph.D. student and was preparing his doctoral dissertation to obtain a Ph.D. degree.

He started to write his paper in English, but actually, he was not confident in English. So, (1) he used a description of experimental methods from another paper in which a similar experiment was conducted. Since the experimental methods are quite common in the relevant field, he did not cite the paper he used.

The dissertation submission deadline was approaching.

Most experimental results were obtained, but some expected results were not obtained.

Although those experiments used different materials from the ones which were used in the completed experiments, it was expected that their experimental results would be almost the same.

Accordingly, since it seemed that there would be no effect on the validity of the paper, he finished his paper (2) using experimental data that he had modified to submit before the deadline.

Case 2

Ms. B is a postdoctoral researcher.

Working hard on research until late every night, she obtained experimental results largely as she had expected. But some data was different from her expectations.

Looking back at her research, she believed that experiments had failed sometimes due to problems with her equipment.

Thinking that these data inconsistencies were probably due to the same reason, she (3) deleted data incompatible with her hypothesis and finished the paper.

Mr. C, a senior at the laboratory, (4) was not involved in this research, but his occasional advice was beneficial. Ms. B decided to submit the paper with his name as a co-author to express her gratitude toward him.

She wanted her paper to be accepted by a journal as soon as possible, since she was close to finishing her term. So, she changed the introduction a little bit for each journal and (5) submitted the same paper to Journal  $\alpha$  and Journal  $\beta$ .

If one of the journals accepted her paper, she planned on declining the other. As the notification from Journal  $\alpha$  was delivered earlier and the paper was accepted for publication, she contacted Journal  $\beta$  to withdraw the paper.

← Please turn the page for the answers.

**To all students and researchers**

If you have any suspicions of research misconduct or if you have questions regarding your research activities and are at a loss as to what to do, please consult with your supervisors, seniors, and friends first. You are not alone. The following complaint desk is available for consultation regarding misconduct in research.

**To all academic staff**

Open-minded communication is key to preventing research misconduct. An atmosphere where everyone can consult and discuss freely and vigorously will lead to outstanding research results.

Contact information regarding research misconduct at Osaka University

Complaint desk for reporting misconduct in research

Research Promotion Division,  
Department of Research Promotion,  
Osaka University  
E-mail: kousei-rep@ml.office.osaka-u.ac.jp  
<http://www.osaka-u.ac.jp/en/research/iinkai/integrity/index.html>



## For the Steady Production of Outstanding Research Results

Preventing research  
misconduct and promoting  
responsible conduct of research

March 2015  
Research Integrity Committee,  
Osaka University

### Are you conducting your research responsibly? Checklist to Ensure Quality Research Results

When planning and conducting your research:

- Ensure the significance of the research is clear.
- Ensure the research plan is academically appropriate.
- Ensure the data and materials are appropriately collected.
- Give appropriate consideration to human subjects and laboratory animals. Understand and follow the regulations of the Ethics Committee, etc.
- Never eliminate data or materials that would be unfavorable to your research.
- Appropriately record and manage data and materials, including experiment notes and research notes.
- Ensure your interpretation of data and materials is valid.
- Strictly follow the relevant laws and regulations.

When publishing your research findings:

- Your results are well-supported by the data and materials.
- Citations and references are valid and correct.
- All authors meet the criteria for authorship.
- Your publication does not contain sections which overlap with content in any of your previous publications.
- Your publication provides information on conflict of interest.
- The data and materials used in your publication are kept on file.

If you did not check any of the statements above, please turn the page and read the explanation. →

## **To produce outstanding research results, you must:**

### **Clarify the research significance and design an academically appropriate research plan.**

The most important point is to conduct academically significant research.

### **Clarify the assignment of roles among co-researchers in advance.**

Specify in advance the assignment of roles, responsibilities, data acquisition, management and sharing methods, as well as determining authorship, before publishing research results.

### **Appropriately acquire the data and materials, and record and manage them in the proper way.**

Research data and materials should be properly stored so that the researchers themselves and third parties can verify the research results later.

Disclosure of relevant data may be required.

### **Analyze and interpret the data and materials with the appropriate research methods.**

Reliable data is fundamental for research.

### **Strictly follow the relevant laws and regulations.**

### **Respect the well-being of human subjects and laboratory animals and appropriately handle personal information.**

Research should be carried out appropriately by observing "Ethical Guidelines for Medical and Health Research Involving Human Subjects," "Ethical Guidelines for Human Genome/Gene Analysis Research," and "Fundamental Guidelines for Proper Conduct of Animal Experiment and Related Activities in Academic Research Institutions," as well as other relevant guidelines.

### **Take measures regarding conflicts of interest.**

Conflicts of interest may impair the objectivity and reliability of research results.

If you receive research funds or director's remuneration from a company, adequate management and disclosure is required.

### **Appropriately cite and refer to previous research.**

Sufficient investigation of previous research when conducting research is required to define the academic significance of your research.

An appropriate description of previous research that is properly cited can demonstrate that the publication is your original work.

### **Assign appropriate authorship.**

Only the author(s)\* should take responsibility for the research publication. All those who do not meet authorship criteria should be listed in an acknowledgments section.

### **Publish valid research results.**

Publishing with objective and verifiable data and materials is required in order to be able to stand up to review and examination from other researchers.

Exaggerations of research results and their significance must be avoided.

### **Appropriately use research funds in accordance with the rules.**

Any inappropriate use in violation of "Regulations on Handling of Competitive Research Funds at National University Corporation Osaka University," etc. will result in disciplinary action.

### **Do not commit research misconduct. Deal with any questionable act in an appropriate manner.**

To ensure quality research, it is of course important that you yourself not to commit research misconduct. It is also important that you deal appropriately with any questionable acts of others.

### **Be conscious of your role as a professional and actively engage in dialogue with society.**

Researchers serve various social roles. Maintaining good communications with society provides a valuable opportunity to reconsider the significance of your research.

### **Recording and managing research data**

Research data, such as experimental measurement data, as well as image data, records of interviews, and historical documents, form the basis of research.

It is indispensable to record, store, and manage the data appropriately since it enables post-review and is critical to secure the reliability of research results.

When a researcher is suspected of misconduct, research records are required to show scientific evidence of the following:

Research was conducted with appropriate scientific methods and procedures

The research publication was written appropriately based on the research

### **The basic items that should be available for review are raw data, laboratory and observation notebooks, as well as test samples and reagents. If any of these items are missing, it will obstruct exoneration.**

Proper management and storage of research data can protect you if you are suspected of research misconduct.

Incidents in laboratories : Answers

### **(1) This is *plagiarism*.**

#### Plagiarism

Plagiarism is the appropriation of another researcher's ideas, analysis methods, data, results, papers or words, without an agreement with the relevant person or without an appropriate indication of its author.

### **(2) This is *fabrication*.**

#### Fabrication

Fabrication is making up data or research results which do not exist.

### **(3) This is *falsification*.**

#### Falsification

Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results, such that the research is not accurately represented in the research record.

### **(4) This is *inappropriate authorship*.**

#### Inappropriate authorship

Inappropriate authorship is the act of including a person who has not met the criteria for authorship, or excluding as authors those who do meet the criteria for authorship.\*

### **(5) This is *duplicate submission*.**

#### Duplicate submission

Duplicate submission is the act of submitting as an original work a paper that overlaps substantially with the one already published or under consideration for publication elsewhere.

If you would like to obtain more information, please see:

- "For the Sound Development of Science, The Attitude of a Conscientious Scientist," edited by the Japan Society for the Promotion of Science Editing Committee, Maruzen Publishing Co., Ltd
- CITI Japan e-learning Program (Online materials. Your affiliated department must be registered.)

iThenticate, the plagiarism checking software that verifies the originality of written work, is also available at Osaka University.

If you have done any of 1 to 5 .....

Fabrication, falsification and plagiarism are misconduct and these are collectively labelled as "FFP."

FFP is the most serious misconduct, and it is fundamentally threatening research based on mutual trust among researchers.

FFP includes the acts of knowingly fabricating, falsifying and plagiarizing, as well as actions that indicate extreme neglect of the basic duties of a researcher.

**If you engage in FFP, you will be subject to disciplinary action, you will be required to return national competitive funds such as grants-in-aid for scientific research expenses, and you will be restricted (from two years up to 10 years) from making new applications for funding.**

In addition to the authors who actually engaged in misconduct, those who were authorized to take responsibility for the offending paper will be subject to restrictions on applications for funding (from a year up to three years).

Along with FFP, duplicate submissions and inappropriate authorship are typical actions which have been recently recognized as researchers' unethical behavior.

These misconduct cases may result in disciplinary action at the University and penalties from the relevant academic societies and associations.

### **Criteria for authorship.\***

In principle, a person who has responsibility for the research results should be described as an author, though criteria for authorship may differ by research field.

For example, the International Committee of Medical Journal Editors recommends that authorship be based on the following four criteria:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.