

# **Understanding Plagiarism in Laboratory Research:** *impact on science and careers*

Office for Research Career Development  
Massachusetts General Hospital  
Boston

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# Faculty Policies on Integrity in Science

- Guidelines for Investigators in Scientific Research
- Guidelines for Editors and Authors of Medical Textbooks
- Guidelines for Investigators in Clinical Research
- Principles and Procedures for Dealing with Allegations of Faculty Misconduct
- Faculty of Medicine Statement on Research Sponsored by Industry

# Faculty Policies on Integrity in Science

- Policy on Conflicts of Interest and Commitment
- Authorship Guidelines
- Letters of Reference
- Guidelines for Attribution of Credit and Disposition of Research Products

**<http://www.hms.harvard.edu/integrity/>**

# Data – Who Owns It?

- “...results and accomplishments of the activities that it funds should be made available to the public. PIs and grantee organizations are expected to make the results and accomplishments of their activities available to the research community and to the public at large.”

NIH Grants Policy Statement.

# Data – Who Owns It?

- “If the outcomes of the research result in inventions, the provisions of the Bayh-Dole Act of 1980, as implemented in 37 CFR Part 401, apply.” NIH Grants Policy Statement
- “In general, grantees own the rights in data resulting from a grant-supported project.” NIH Grants Policy Statement

# Practical Implications

- Check with Intellectual Property Policy.
- Your institution owns the data you create.
- HMS owns the data/materials created while working on and using HMS facilities.
- If you leave the institution, you can usually take *copies* of your data with you.
  - Especially true for fellows and postdocs.

# ARREST OF EX-HARVARD POSTDOCS **Raises** **Questions of Ownership**

“Two former Harvard University researchers face up to 25 years in prison and a \$750,000 fine for allegedly conspiring to steal Harvard-owned trade secrets and for shipping university property across state lines. The defendants were arrested last week and are in jail in California pending extradition to Massachusetts.”

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- “Prosecuting people who steal the intellectual property of individuals and institutions is a very high priority for the Department of Justice,” said US Attorney Sullivan. ‘Protecting the cutting-edge ideas is crucial to the creation of new products and our economy as a whole. Congress has enacted a series of law to ensure that innovators get credit for their inventions and if people steal the ideas that belong to someone else and try to use those ideas for their own economic benefit, they will be prosecuted.’”

# Attribution of Credit

- Guidelines for Attribution of Credit and Disposition of Research Products:  
**<http://www.hms.harvard.edu/fa/attribution.html>**
- Use of Published Data
  - All participants should be able to use published data in future works.
  - Permission of colleagues required for reproduction of figures, quotes, photographs, including, if necessary, copyright authority.

# Authorship Guidelines

- Guidelines:
- <http://www.hms.harvard.edu/integrity/authorship.html>
  - Everyone must make “substantial, direct, intellectual, contribution to the work.”
  - “Everyone who has made substantial intellectual contributions to the work should be an author .”
  - “All authors should participate in writing the manuscript by reviewing drafts and approving the final version”
  - “One author should take primary responsibility....”

# Authorship Guidelines

## ➤ Order

- “The authors should decide the order of authorship together.”
- “Authors should specify in their manuscript a description of the contributions of each author and how they have assigned the order in which they are listed so that readers can interpret their roles correctly.”
- “The primary author should prepare a concise, written description of how order of authorship was decided.”
- **Note:** The ORI does not consider authorship disputes among joint collaborators as plagiarism and refers them to the PHS agencies or institutions for resolution.

# Crossing the Line...

- Principles and Procedures for Dealing with Faculty Misconduct
  - <http://www.hms.harvard.edu/integrity/miscond.html>
  - "Research Misconduct" means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. 42 CFR 93

# Research Misconduct Definition

- **Fabrication** is making up data or results and recording or reporting them.
- **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.
- **Plagiarism** is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.
  - Includes both theft or misappropriation of intellectual property (i.e., ideas, unique methodologies obtained by a privileged communication – i.e., grant or manuscript review); and
  - Substantial unattributed textual copying of another's work.

# Research Misconduct Definition (Cont.)

- **Misconduct must be:**
  - **Committed intentionally, knowingly, or recklessly.**
  - **Proven by a preponderance of the evidence.**
    - 42 CFR §93.103-93.104, Public Health Service Policies on Research Misconduct.
    - Same definition adopted by the National Science Foundation, 45 CFR §689.1-689.2.
- **Research misconduct does not include honest error or differences of opinion.” 42 CFR § 93.103**

# The Players

- **Complainant**
  - Scientist – collaborator (current or former); competitor; student
  - Journal – issues uncovered during peer review process.
  - Federal agency (ORI, NSF, OIG-HHS).
- **Respondent**
  - The person accused of having committed plagiarism
- **Employer: Academic Institution, Hospital**
  - Conducts initial inquiry and investigation.
  - Makes findings of facts and recommendations for resolution.
- **Federal Agency**
  - Refers matters to the institution involving PHS or NHF grants.
  - Reviews and rules on institution's findings.
  - Conducts public hearings, where necessary.
  - Recommends/approves of disciplinary action, i.e., voluntary settlement agreement, administrative action, or debarment.
- **Department of Justice/State AG's Offices**
  - Prosecutes and defends civil and criminal allegations arising out of allegations of misconduct.

# The Process – Role of Institution

- For people with HMS Faculty and Hospital Professional Staff Appointments, process governed by HMS “*Principles and Procedures for Dealing with Allegations of Faculty Misconduct*” and Partners HealthCare “*Research Integrity Policy*.”
  - One process, acting on behalf of both HMS and Hospital.
  - Office of the Dean and Hospital Research Integrity Officer (“RIO”) determine whether formal investigation is necessary.
  - Panels formed under oversight of HMS Standing Committee on Faculty Conduct (the “Committee”) and Hospital RIO and President to make factual inquiry, investigation, findings, and recommendations.
  - Final acceptance of findings, and recommendations for resolution, made by the HMS Committee and Hospital administration; recommendations implemented by HMS Dean and Hospital President.

# The Process – Role of Institution

- If research is PHS-funded and respondent has HMS and Hospital appointments:
  - Hospital does a “preliminary assessment” to determine if matter is truly plagiarism/research misconduct (as opposed to, e.g., authorship dispute).
  - If plagiarism/research misconduct, Institutions (HMS and Hospital jointly) conduct inquiry, an initial fact-finding to determine whether a full investigation is warranted.
  - Committee and Hospital RIO determine whether the inquiry’s findings provide a sufficient basis to conduct an investigation.
  - If so, panel formed to conduct investigation, a formal examination and evaluation of the factual record to determine whether research misconduct took place, to assess its extent and consequences, and to evaluate appropriate action.
  - Panel reports to Committee/RIO; Committee’s report to ORI (or relevant federal agency).
  - Institution decides appropriate remedies.
  - Although uncommon, the ORI/relevant federal agency may recommend more severe remedies.

# The Process – Role of Institution (Cont.)

- For non-PHS-funded research – generally much the same, except for reporting to ORI.
- If no HMS Faculty appointment – generally much the same, only more Hospital-based.

# The Process – Role of Federal Agencies

- Relevant federal agency (ORI, NSF, HHS-OIG) reviews the institutional findings:
  - If agency finds no research misconduct, matter is closed.
  - If agency finds research misconduct, agency determines whether to accept outcome of institutional process (generally, yes); or if not, agency decides on an administrative action and Respondent may request administrative public hearing.
- Court process:
  - Complainant may appeal final administrative decision through the federal court system.
- Generally the process ends with the institutional process, and acceptance of institutional outcome by the agency.

# How to Avoid Getting into Trouble

- Give credit where credit is due – **Acknowledge sources**
  - If you are copying words – put them in quotations marks with proper citation.
  - If you are paraphrasing or summarizing from another publication – give citation or attribution.
  - If you are doing research based upon collaborations previously done with others, work with the collaborators on how to handle.
    - And do it up-front.
- Be aware of “self-plagiarism”
  - Use of your own previously published material without crediting the previous paper as a source.
    - **Data Augmentation** – Collecting additional data for an existing published study and combining the data to publish as a new study.
    - **Data Fragmentation** – Segmenting results of a large study into two or more publications, leaving the impression that the results are from different subject samples.
  - Allows for a bloated number of research papers to be produced without additional work to create new papers.
    - Identical papers can be created and passed off to different journals all for the purpose of increasing the academic recognition of the researchers.
  - May also invoke copyright infringement laws.

# What Conditions Predispose to Plagiarism?

- Ease of text manipulation.
- Perceived non-substantive sections of writings.
- Time pressure.
- Responsibility for supervisees.
- Diversity of our community.
- Being overextended.
- Limitations of space.
- Failure to communicate.

# What Can Happen If You Are Found to Have Plagiarized?

- Letters of reprimand.
- Mandatory supervision over future work/funding proposals.
- Suspension, termination or refund of active grants.
- Suspension or debarment from federal funding programs for specified periods of time.
- Administrative actions and debarment are publicly disclosed by the ORI and OIG.
- Note: actions taken by agencies are typically for a defined period of time i.e., three years.
- Monitoring and review of future grants.
- Correction of research record (retractions).
- Civil litigation, potential compensatory and punitive damages.
- Criminal charges (false statements, mail fraud, wire fraud), potential fines and penalties.
- Reputational and career repercussions.
- Resignation/loss of employment.
- Restriction of opportunities for private research funding.

# If You Are Accused of Plagiarism

- Know your rights
- Understand the relevant HMS guidelines and federal rules and regulations.
  - Standard of proof: preponderance of the evidence (more likely than not).
  - Right to assistance from advisers (colleagues, department heads, outside counsel).
  - Right to review and comment on evidence Committee compiles during the inquiry and investigation.
  - Right to submit formal comments to the Committee's report and recommendations.
  - Right to request a hearing to contest the federal agency's findings.
  - Rights may expire if not exercised in a timely way.

# What Do You Do If You Think Someone Has Committed Plagiarism?

- Talk to Chief, Institutional Research Integrity Officer, Office of General Counsel (with a caveat), HMS Ombuds Office, or other senior management person you trust.
- Otherwise, be aware of the confidentiality of the process.
- Be aware of your own conflicted situation:
  - Academic and institutional policy obligations to come forward; but
    - Research misconduct proceedings can be a messy business. Institution is required to make reasonable efforts to maintain your privacy, and to protect your position and reputation, and to protect you from retaliation. In plagiarism cases, the identity of a whistleblower can often be protected.
    - Be sure that your allegation is made in good faith, and be prepared to cooperate with the inquiry/investigation.

# Case Study: Misappropriation

- Researcher used data from a colleague for his NIH application (related to text in the legend of a Figure) and claimed the Figure represented preliminary results of his independent experiments that differed from the source of the Figure and prior research.
- Research misconduct because the researcher plagiarized and falsified the figure.
- Resolution- three-year settlement agreement:
  - Plan for supervision of Researcher's duties on any PHS funded research that must be approved by funding agency and ORI.
  - Researcher must ensure that any institution employer submit to ORI, in conjunction with each application for PHS funds or report, manuscript, or abstract of PHS-funded research in which Researcher is involved, a certification that the data are based on actual experiments or otherwise legitimate.
  - Exclusion from serving in any advisory capacity to the PHS.

# Case Study: Supervisory Issues

- Researcher used data from an Internet database and misrepresented to his supervisor that the data represented his own research on cloning and gene sequencing for an NIH-funded grant. There was no publication of the data.
- Researcher also misrepresented to his supervisor that data taken from a graduate student's notebook in the laboratory was primary data from his sequencing.
- Research misconduct for plagiarism, fabrication and falsifying data.
- Resolution – three-year settlement agreement:
  - Debarment from involvement in any transactions or contracts funded by the Federal Government.
  - Exclusion from serving in any advisory capacity to the PHS.

# Case Study: Self Plagiarism

- Researcher intentionally and knowingly prepared and included duplicate image data in certain Figures of a PHS fellowship application. The duplicate images were labeled as having been obtained from different experiments. The Researcher also submitted his duplicate and reused image data in a manuscript that was published and in his thesis proposal.
- Research misconduct for duplicating/reusing and misrepresenting data.
- Resolution – three year settlement agreement:
  - Plan for supervision of Researcher's duties on any PHS-funded research project that must be approved by funding agency and ORI.
  - Researcher must ensure that any institution employer submit to ORI, in conjunction with each application for PHS funds or report, manuscript, or abstract of PHS-funded research in which Researcher is involved, a certification that the data are based on actual experiments or otherwise legitimate.
  - Exclusion from serving in advisory capacity to PHS.
  - Researcher to submit a letter to the journal editor, with copies to his coauthors, identifying the falsified Figures in the published article.