CASE # 1: CO-AUTHORSHIP—WHEN CHANGING LABS, HAVE YOU DONE ENOUGH TO BE INCLUDED?

(Based on Shamoo A. and Resnik D., Responsible Conduct of Research, 2003)

Sarah is a graduate student that worked in the lab of Dr. Jones for a year studying a novel transmembrane protein found only in tumor cells. Sarah isolated some of the protein and then used a contract laboratory to develop a sensitive rabbit antibody that recognizes an extracellular portion of the protein. Her dissertation project was going to involve using this antibody (along with other methods) to study the protein and its potential role in tumor progression and metastasis.

Despite this progress, she unfortunately did not get along well with Dr. Jones and decided to leave the lab and move to Dr. Smith's lab to begin a new project.

A few months later, Sarah finds out that her former advisor is preparing a paper based on subsequent research conducted by a new graduate student, but using the antibody Sarah developed. Sarah feels that she should be a coauthor and brings this up with Dr. Jones. The former advisor explains that the data being published were obtained solely by the new graduate student, and that raising an antibody is merely a technical activity that does not justify co-authorship. Sarah argues that the isolation of the protein and the decision about what peptide to select as antigen constituted original scientific thinking. Dr. Jones disagrees, saying that the literature contains numerous examples of this type of work.

Discussion Questions

1. Should Sarah be a coauthor on the paper?

2. Dr. Jones suggests that she will write a methodological paper limited to describing the preparation and characterization of the antibody. She offers Sarah coauthorship. However, she can't get to work writing that paper until her new student's paper has been submitted. Should Sarah accept this offer?

3. Sarah brings her complaint to the chair of the department. She argues that the new student's research could not have been done without her antibody and its characterization. How should the department chair respond to this situation?

4. What could Sarah and her advisor have done prior to her departure to prevent this disagreement from occurring?

5. Would your answers be any different if Sarah had remained in the original lab, but had abandoned the project and taken up a new dissertation topic?

6. Would your answers be any different if Sarah were a technician in the Jones lab instead of a graduate student?

7. Would your answers be any different if Sarah had used core-laboratories to carry out the protein's isolation and sequencing?

CASE # 2: CRITERIA FOR AUTHORSHIP AND ATTRIBUTION

Dr. Johnson is a postdoctoral fellow at the NIH working in the laboratory of Dr. Brown exploring the relationship between insulin-like growth factor (IGF)-1 signaling and cancer. He demonstrated that IGF-1-receptor deficient mice develop 50% fewer liver tumors than normal controls, and that daily IGF-1 injections substantially increase liver tumor formation. Dr. Johnson is ready to submit a manuscript for publication. The following individuals were involved in this project:

- Dr. Johnson came up with the original idea and hypothesis (that a defect in IGF-1 signaling inhibits liver tumorigenesis), designed and supervised the experiments, analyzed and interpreted the data, and drafted the manuscript.
- The Principal Investigator, Dr. Brown, who supervised Johnson's work, obtained funding, and read and edited the manuscript.
- A tenured researcher at State University provided Dr. Johnson with the mice used in the experiments. In a note that accompanied the Material Transfer Agreement, he said that he was providing the mice with the understanding that he would be an author on the paper resulting from the experiments.
- A Staff Scientist pathologist performed the pathological analysis for the study, provided digital images for publication, read the manuscript, and drafted the pathology methods section.
- A Staff Scientist Biostatistician performed the statistical analysis for the study and provided Dr. Johnson with advice concerning sample sizes and the need for multi-variable regression models. He read the manuscript and drafted a section on the statistical analysis.
- A technician performed 50% of the experiments, and made useful suggestions for modifying experimental protocols. She read the paper and made substantial comments.
- A graduate student performed 50% of the experiments, read the paper and made no changes.
- A technician took care of the laboratory animals.
- A highly respected and well-known Oncology Principal Investigator read the paper, revised it critically for intellectual content, made some useful suggestions concerning the interpretation of the data, but disagrees with one of the findings in the paper.
- An English major at State University and friend of Dr. Johnson's helped him draft and edit the manuscript. (English is not Dr. Johnson's native language.)
- A graphics specialist helped prepare some color figures for the manuscript.

Discussion Questions

1. Who should be an author on this paper?

2. Who should receive only an acknowledgment?

3. Who should not even receive an acknowledgment?

4. Who should be first author? Second? Last?

5. Should co-first authorship be considered? Co-last author? Corresponding author?

6. When should authorship decisions be made?

7. Would it have been appropriate to use written agreements for determining authorship issues in this case? If so, with whom and when?

CASE # 3: MULTIPLE PUBLICATIONS

Miller is a second year graduate student performing materials science research on diamond. Sample preparation and analysis cost is very high, there are few samples, and not many experiments can be conducted. Because of these constraints, it is difficult for faculty and students to generate more than one or two publications from a given series of experiments, and students from the department generally have only four or five publications by the time they finish their Ph.D.

Miller selected as his adviser Professor and Department Chair, Dr. Davis, based on the professor's outstanding research career and Miller's realization of the importance of publications for his advancement. Miller is his only graduate student, he and Davis have a congenial relationship, and his research is progressing well. After one of their brief research meetings, Davis encourages Miller to assemble his current data for publication in an obscure journal. After several revisions, they submit the paper, and it is accepted soon thereafter. Miller is happy to start adding publications to his resume.

Being busy with departmental tasks, Davis hadn't thought in depth about the implications of Miller's data. Finishing up work a little early one evening, he re-reads the paper and concludes that it should have been published in a more highly regarded journal. After a couple of months of clever revisions, Davis submits the research paper to the more prestigious journal, where it is accepted after revisions. Upon its acceptance, Davis sends Miller a short email with the title, a copyright form, and the tentative citation, and congratulates him on adding another publication to his resume. Although Miller had not known Davis submitted the separate paper, he was both delighted and confused, asking himself, "How can I publish the same work twice?" Miller does not want to make waves, and is not sure to whom he should turn. He lets the matter pass and says nothing.

Discussion Questions

1. Is it ethical for authors to receive credit for two publications from the same data?
    * What if the papers are essentially the same ideas and data, but written somewhat differently?
    * What if the idea is the same, but different examples of the same experiments are presented?
    * What if it is the same dataset, but a new analysis and interpretation has been applied to it?

2. Would it matter if the first publication was in conference proceedings? Assume for argument sake that the paper was reviewed, but not with the same scrutiny as a peer-reviewed journal. Can data in a patent that is publicly available later be published?

3. Should the authors be required to inform the second publication that data were presented or published elsewhere?

4. In an ongoing research project, it is common for data to overlap. How much new or additional data should be required for the paper to be a new publication?

5. In his role as student and new investigator, has Miller behaved appropriately with regard to the responsible conduct of science? To whom should he have turned with his concerns about Davis?

6. When is information/data/research considered published? Presentations? Posted as an online lecture or database?

7. Consider interdisciplinary research. Can scientists from each discipline publish specific or methods aspects of the research in their specialty journals? If so, should all authors from the original paper be on each new paper?

8. Is it acceptable to publish or present work or research without informing one's coauthors in advance?

9. Has Dr. Davis fulfilled his responsibilities as a mentor? If not, where has he gone astray?

CASE # 4: FIRST AUTHORSHIP, PUBLICITY, AND MULTIPLE INSTITUTIONS

Dr. Williams recently joined the Population Branch as a post-doctoral fellow very interested in vitamin research. At their first formal meeting upon arrival, his primary mentor and early tenure-track investigator, Dr. Smith, suggests several timely hypotheses with data currently available for analysis and publication. They agree on three analyses to be completed in the next 12-18 months, with the first looking at vitamin D status and breast cancer risk. Williams is very excited, and he quickly submits the study mini-proposal to the parent cohort study data-base for documentation and approval, finalizes the analytical plan, and begins working on the multivariate risk models.

Upon her return 2 months later from three weeks of travel, Smith schedules a meeting to review Williams' results. She senses that he has some very exciting findings, and in fact he reports a very significant, 75% breast cancer risk reduction during the 10-year follow-up period in women who had higher vitamin D levels. This result was generally consistent with their hypothesis, but the magnitude of the preventive association was more than twice what they had anticipated, thereby elevating the potential impact of their findings and affording them likely publication in the *New England Journal of Medicine*.

Williams is very excited about this and is ready to begin drafting the manuscript. Smith is also excited, but at the same time frustrated that an analysis they believed would go to a modest journal will instead be high-profile, and could have helped her with tenure if she were first author. She relates this development to the PI of the parent study, Dr. Jones. They both quickly realize that one of them is going to miss out on much of the attention and credit by not being senior author, and decide to ask Williams if he would accept a second author position so that Smith can write the paper and be first author, thereby boosting her chances for tenure. Williams is surprised by the request and feels pressured to agree, so he asks them to give him a few days to think about it. At the same time, one of the five collaborating study centers, Seattle, informs Smith that a junior faculty member there is interested in the same hypothesis, and would like to get started and lead the analysis based on their earlier discussions with the PI, Dr. Jones.

Discussion Questions

1. Is the request by Drs. Smith and Jones for an authorship change reasonable? When should authorship roles/positions be discussed?

2. In such a situation, how does one balance the career advancement of post-doctoral fellows and tenure-track investigators?

3. How might consideration of co-first or co-senior authorship help out in this situation? What does it mean to be a senior author? Corresponding author?

4. If Williams wants to remain first author, who can he turn to for advice or advocacy? Should the branch chief or IC training office get involved or intervene on his behalf?

5. What should be done about the request from Seattle? How can such "late-breaking" overlapping requests or surprises be avoided?