Case Study 4: What is Responsible Peer Review?

Dr. John Leonard, one of very few molecular biologists working in a particular field, receives a paper to review, about a protein called survivin, which he and a graduate student in his laboratory are researching. The article was submitted by Dr. Mark Morris to Protein Interactions, a medium-impact journal, and the editor asked Dr. Leonard and two other experts in the field to review the paper. The article suggests a new interaction between survivin and the protein GFX and provides evidence for the fact that both proteins are necessary for the full survival-promoting function of survivin in a cell. The results suggest also that high intracellular concentrations of survivin is at least detrimental, if not fatal.

Dr. Leonard, in a quick review, finds that the paper is fraught with problems: poor controls, inconsistent data in figures, alternative explanations which are not considered and claims which are overstated. He gives the paper to his graduate student, Melissa Zane, who gives it a detailed critique and recommends significant revisions. Ms. Zane has never reviewed an article before, and Dr. Leonard thinks that doing so would be a good educational experience for her.

Parenthetically, Ms. Zane notes the finding about too much survivin being toxic to cells, a problem she has had working with the protein, and discusses it with Dr. Leonard. Both agree that they should lower the dosage of survivin in her experiments; at the lower concentration of survivin, the cells actually survive for a week, longer than her experience before, and then they die.

Dr. Leonard submits Ms. Zane's and his own comments about the research to the editor, suggesting that the paper be accepted only after a few more experiments are performed to validate some of the conclusions. One of the other reviewers has comments similar to Dr. Leonard's, and the editor asks Dr. Morris, the author, to make the revisions before he will accept the paper.

Over the next few weeks, Dr. Leonard ponders the interaction between GFX and survivin which was discussed in the reviewed manuscript. Although GFX was not a part of the studies that Dr. Leonard and Ms. Zane were doing, Dr. Leonard suggests to Ms. Zane that she add a compound to the cell culture system which will stimulate the cell to produce its own GFX (a method that is somewhat different from what was in the paper by Dr. Morris which is under review). The enhancement method works; the cells live for a month. Ms. Zane and Dr. Leonard draft a paper based on their new results, which includes appropriate controls. Science, a prestigious journal, accepts the paper.

Several months later, Protein Interactions publishes a revised paper from the laboratory of Dr. Morris. After Dr. Morris sees the article in Science, he suspects that Dr. Leonard (who was an anonymous peer reviewer on the Morris paper), might have taken some of the ideas for the Science article from his paper under review. Dr. Morris knows that Dr. Leonard hadn't been working on GFX because it was hard to purify, and deduces that he used information from the unpublished manuscript to stimulate GFX activity.
Questions for Discussion

1: What types of conflict of interest might arise when someone is asked to review a paper or grant application? How can one separate oneself from the content of a paper or grant application under review?

2: Is it ever appropriate for a peer reviewer to give a paper to a graduate student for review? If so, how should the reviewer do so?

3: Is it appropriate for a peer reviewer to use ideas from an article under review to stop unfruitful research in the reviewer’s laboratory?

4: Is it ever appropriate for a reviewer to use ideas from a paper under review, even if the reviewer’s method to achieve a result is different from that used in the paper under review? If so, how should the reviewer proceed?

5: What are some of the challenges in the current peer-review process, in which the peer reviewer is usually anonymous, often a peer, or possibly even a rival, of the submitting author, and the author is often known to the reviewer?

6: What recourses are there for Dr. Morris if he suspects that his ideas were plagiarized?


Case Study 5: Peer Review and Controversial Research

Dr. Marie Rolands, a tenured professor of psychology at a major university, has published widely in her field of industrial psychology. Recently, she has decided to pursue an area of research that challenges an established methodology with which certain worker-motivation studies are performed. The main proponents of the conventional paradigm are two investigators, Dr. Stephen Jones and Dr. Claude Marcus, who work at another prestigious university.

Dr. Rolands has performed experiments and collected evidence which she interprets as myriad flaws in the Jones-Marcus method. She wrote a paper incorporating her research findings, analysis, and critiques, and she submitted it to the Journal of Industrial Psychology. The editor of the journal sent the paper to Drs. Jones and Marcus and two other investigators for peer review. Drs. Jones and Marcus both provided a lengthy response to Dr. Rolands’ paper, challenging her disagreement with their method on several points. As a result, they both recommended that the editor reject the paper. The third and fourth reviewers were split as to whether it should be published.
The editor rejected the paper but sent Dr. Rolands a copy of the reviewers’ comments, which were signed openly and forthrightly by Drs. Jones and Marcus. Although peer review is often considered anonymous in psychology, some reviewers sign their names to reviews.

Dr. Rolands took issue with each of the points that Drs. Jones and Marcus made and performed a series of follow-up experiments to highlight what she believed were the flaws in their arguments. A few months later, she drafted another paper, in which she mentioned the criticisms of Drs. Jones and Marcus as part of the publication. She was reluctant to submit the new manuscript to the Journal of Industrial Psychology, because she feared that Drs. Jones and Marcus would again recommend rejection of the new manuscript, because she knew that the editor was friendly with Drs. Jones and Marcus socially and because she suspected that the editor probably accepted the validity of the Jones-Marcus methodology.

Instead, she sent the manuscript to another journal, Applied Industrial Psychology. Anticipating that Drs. Jones and Marcus might get upset if she cited their names and peer-review comments in the new paper, she explained her actions and the history of the paper to the editor of Applied Industrial Psychology and sent a copy of the article to Drs. Jones and Marcus. Dr. Rolands asked the editor if it might be possible to send the paper to neutral parties so that she could get a more balanced review of her work. The editor, however, said that he felt he would have to send it to Drs. Jones and Marcus, because they were the most qualified to understand the inner workings of the model. The new paper was rejected.

Questions for Discussion

1: How can someone whose research is being "attacked" provide an honest appraisal of the critique?

2: Is it possible that Dr. Rolands’ challenge of Drs. Jones and Marcus is more personal than professional? How might these possibilities be distinguished from one another?

3: Should Dr. Rolands point out to the editor of the first journal his potential conflict of interest? Explain your answer.

4: What recourse does Dr. Rolands have now that her paper has been rejected two times?