NIH Rigor and Reproducibility Training Module 1: Lack of Transparency

Starting Points:

- Transparency: accurately and openly providing all key information on the design, execution, and analysis of experiments[1]
- In order to reproduce another's findings adequately, the experimental methods, rationale, and other pertinent information must be accessible and understandable

Lead-in Questions:

- Do you think most people knowingly display a lack of transparency or inadequate reporting of methodological details in published papers?
- Do journals have a role in determining this? If so, what do you think their role is to assist investigators? What additional actions could be taken? [Current NIH-involved efforts[2]]

Follow-up Questions:

- Can you relate to a similar experience in your own lab?
- Do you think the corresponding author should have handled the situation differently?
- Was there anything the graduate student or PI could have done to determine this without multiple conversations with the corresponding author?
- The corresponding author was very open and transparent with the PI. Do you think this would always be the case?
- In this instance, the PIs had been in communication previously, so it provided Dr. Hansen the opportunity to look for the experimental details. Do you think it is realistic that he would have known specifics about the experiment had this not been the case?
- How would you handle the situation if the corresponding author did not want to provide data or discuss the experiments beyond generalities?
- Would it always be so easy to locate the corresponding author? Alternatively, do you think the corresponding author always would be able to locate the details, particularly if the person who had done the experiments had left their lab and/or if several years had passed since the original paper was published?
- Do you think you or your PI would have been as rigorous about determining why the results weren't reproducible if you encountered a similar situation?
- Would you have made the controls fresh each time or frozen them for reuse, assuming there would be no degradation?
- Was the experiment designed poorly or was it a simple mistake by those in the lab performing the experiments?

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[1] Landis, et al. A call for transparent reporting to optimize the predictive value of preclinical research. *Nature*. 2012 Oct 11; 490(7419): 187–191. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3511845/

[2] http://www.nih.gov/about/reporting-preclinical-research.htm

- This mistake may seem obvious to any experienced or well-trained scientist, but more subtle differences often can lead to variations in results. With the amount of detail frequently reported in manuscripts, how confident are you that you could determine there were differences in the preparation of the controls?
- How can you be sure that an initial experiment is designed in the most thoughtful and rigorous manner?
- Do you think a set of best practices for developing a methods section would have eliminated or greatly reduced the likelihood of this situation arising?