Rigor and Reproducibility

Role Play:

This is a 2-person role play involving reviewers of a grant application submitted to their institution for internal funding. This role play involves reviewers reviewing a grant application. The reviewers are all experts in the area and have a disagreement regarding the results of an experiment.

Roles:

Reviewer 1

Reviewer 2

Character Description:

Reviewer 1 and 2

You are both well known in your research fields and conduct excellent research. You have been invited to participate on a grant review committee for your institution.

*Scenario*

*Reviewer 1*: “I’ve reviewed the grant pretty carefully, and I think this is a promising application. The results shown here are very significant.”

*Reviewer 2*: Based on?

*Reviewer 1:* Well, if you refer to the histogram in Figure 3…

*Reviewer 2*: Ok, I see it.

*Reviewer 1:* These results show a concentration – dependent effect from this compound on cell growth. That’s huge. It’s something we haven’t’ seen before… and it’s exciting.

*Reviewer 2*: Maybe…

*Reviewer 1*: Based on what?

*Reviewer 2*: I am not sure they’re strong enough.

*Reviewer 1:* Really?

*Reviewer 2*: See, the figure legend states that results for two concentrations weren’t included because the samples were lost to contamination. But, it seems really unlikely that every single time the experiment was repeated, that the exact same samples in the exact same concentration were also lost to contamination.

*Reviewer 1: W*hat does this suggest to you?

*Reviewer 2*: That the error represents variations in cell counts between culture dishes used in a single experiment. Just one. No replicates.

*Reviewer 1*: right. There’s only one data point here and it’s being reported as an average of multiples.

*Reviewer 2*: As in, you may take a thousand cells from one mouse but you can only get one point from the results.

*Reviewer 1:* Exactly, we actually use that example frequently when we train students in my lab.

*Reviewer 2*: So, these results are not as strong as they seem.

*Reviewer 1:* Right!

*Reviewer 2*: Still this is an exciting application, quite promising. But it’s obviously going to need some redesigning to confirm and strengthen these results.

*Reviewer 1*: Yeah, that might affect their score

*Reviewer 2*: Just doing my job

*Reviewer 1:* And doing it quite well, I might add