

Editorial

Letter from the Editor-in-Chief: Irreproducible Results and NIH Actions

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In June of 2014, I wrote a brief letter [1] describing the new awareness that many important published papers could not be reproduced, and that the NIH was rightfully very concerned about the problem. There are now new NIH guidelines on rigor and reproducibility for grant applications. Also, a large number of journal editors have publically endorsed the guidelines. Here is a brief description of what is happening.

The NIH has a statement [2], for grant applicants, on enhancing reproducibility through rigor and transparency. At this point in time, the following issues must be addressed in grant applications: (1) the premise: the scientific research that forms the basis for the proposed research, (2) rigor: transparent methodology that facilitates reproducibility, (3) biological variables: sex, age, weight, and history must be addressed clearly and justified by the literature, and (4) biological and chemical resources: authentication of antibodies, chemicals, and other reagents. Examples of how these are addressed in grant applications are given [2].

Another site [3] contains more details on the guidelines for preclinical research. These guidelines are summarized briefly as follows. Maximize transparency by providing very clear and detailed methodology; journals should not have tight restrictions on the length of the Methods sections. This requires very clear descriptions of how replications were performed, how statistics were used, how the sample size was determined, the method of randomization, blinding among the observers if any, and a clear statement of criteria for including or excluding subjects. There are additional suggestions on methodology and transparency at another NIH site [4]; a key idea is that datasets be available to other researchers.

It is to be noted that many journal editors support these guidelines [5] and one can assume that at some point in the future they will become more or less required by journals. It is prudent for all of us to pay attention to these issues and improve rigor and reproducibility in our publications. This journal's guidelines for author's section now

notes these policies, and how to get additional details and examples. This is an issue whose time has come, and one that will enhance the quality of science worldwide.

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References

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