



What Is a “Preliminary Result?”

Dear Labby,

My student is excited to have gotten a Minisymposium talk at the forthcoming ASCB Annual Meeting in Denver and he has already been rehearsing it with me and the lab members. All is going well. But a surprising degree of acrimony has arisen over the concept/definition of what is meant by a “preliminary result.” My student wants to mention something in his talk that I feel is so uncertain as to be inappropriate to report. We have had an intense discussion about this in my lab, and I have also gotten mixed feedback from several faculty colleagues. So I thought I would also ask Labby: What exactly is a preliminary result?

—Professor Not-Preliminary

Dear Professor Not-Preliminary,

There are, as you know, three canons in the scientific method in its modern era. Accuracy refers to the proximity with which a measured parameter approaches a known value. Sensitivity deals with how rare a measured entity or phenomenon can be detected by some method. Your query deals with the third: precision. It is the degree to which a finding can be reproduced.

The term “preliminary finding” is all about precision. But, as you have seen, it is a wobbly term. When it is used in a talk or published report, listeners/readers assume that the finding has been replicated at least one time. In many cases it has been. In other cases an observation may have been made multiple times and yet still is not understood. Such a finding is presented as “preliminary” because the investigator has the humility to admit that the interpretation is elusive. Such are the minority of cases, however.

In the majority of cases, the term “preliminary finding” translates as “we have seen this in one experiment.” The term usually carries the (unstated) footnote: “And we fully expect we will get the same result when we do this experiment again.” Therein lies the folly of using the term this way. Precision (i.e., repetition) is key to the scientific method, and anyone who dares to predict replication from a single experiment is not practicing science but rather sophistry.

As we all know, there is often a great temptation to convey a “preliminary finding” in a talk or manuscript. We like to tell a story and make it as up-to-date as possible. What needs to offset this temptation is the recognition that a single finding is not science. Your instinct was completely right, and you should prevail upon both your student and faculty dissenters. You are to be admired for your good instincts. ■

—Labby

Direct your questions to labby@ascb.org. Authors of questions chosen for publication may indicate whether or not they wish to be identified. Submissions may be edited for space and style.

Labby’s Fan Mail

Dear Labby,

Whoever you are, you are brilliant, and your columns in the *ASCB Newsletter* are always interesting and insightful. I have to say I would have agreed with the external examiner [Dear Labby, October *ASCB Newsletter*] on the last one (from what we know), but “rediscovering” what has already been discovered—and expending federal funds to rediscover it—is one of the worst parts of so many folks not knowing anymore what was done in the field more than five years ago. The explosion in literature and the end of the traditional reading rooms are more at fault than the humans involved, I’m sure.

In this context, I loved your mention of Claude Bernard. I am a botanist but one of my favorite books, ever, is *An Introduction to the Study of Experimental Medicine*. I dedicated my dissertation to Bernard (and a more modern mentor) because of the great beauty and integrity of his wisdom about the scientific method. I read parts of this book to every class I teach. ■

—Susan Brawley, University of Maine