

Why Wiley's Current Protocols Matter More Than Ever to Researchers

Every Step Counts!

1 Recent research suggests lack of consistency and reproducibility in research

Reports from the scientific community express an increasing concern with the lack of reproducibility of key research findings. According to the Academy of Medical Sciences, if too many results lack reproducibility, it could hinder scientific progress, delay translation into clinical applications and waste valuable resources.

Comprehensive, peer-reviewed lab protocols with robust materials and methods sections are imperative to ensure researchers are able to reproduce results in the most efficient way possible, while adhering to the highest principles of experimental design.

2 Reinforcing the principles of experimental design

Research from the National Institutes of Health suggests the spike in irreproducibility may be related to a lack of proper training in experimental design and research methods. Reliable protocols guide researchers to practice standardization, rigorous control for bias and experimental validation to avoid faulty results or misinterpretation of data. Troubleshooting sections featured in quality protocols also prevent researchers from going off the grid, carefully facilitating the ability to correct course without compromising the validity of results.

3 The ability to build on past research is a foundational scientific principle

Researchers rely on work conducted by their predecessors to test hypotheses further and build on existing findings. Peer-reviewed protocols ensure reproducible results, allowing scientists to replicate such experiments and take them one step further to discover the next significant finding.

4 Trial and error can't be the scientist's sole teacher

While trial and error will always be a valuable part of the learning process, researchers can't afford to learn everything the hard way. Reagents and equipment are expensive; they must be selected judiciously and applied with confidence. High-quality protocols spell out the methods and materials necessary to prevent wasted resources and avert disaster in the lab.

5 Time is precious

With so many competing priorities, researchers don't have time to develop experiments from scratch when someone else has already done it before them. Reliable and comprehensive lab protocols save researchers time by spelling out exactly what the researcher needs to conduct the experiment, and what they need to do to yield the anticipated results.

6 Increased emphasis on quality control in the workplace

COLA, a U.S. laboratory accreditation organization, recently published a white paper urging the medical community and their lab personnel to establish tighter protocols to help reduce redundancy and an alarming increase in testing errors. The research argues that these issues are not only a significant drain on resources but also increase the likelihood of false results that could lead to incorrect diagnoses or unnecessary medical interventions.

Thus, as scientific researchers hone their lab practices as students, it's increasingly important for their academic and post-graduate careers that they get in the habit of rigorously adhering to reliable protocols to ensure the quality of their results and safeguard against potential deleterious impacts.

7 Greater implications for the scientific community

The focus on improving reproducibility transcends wasted time and resources, and goes beyond even laboratory experiments. According to a recent symposium report from the Academy of Medical Sciences, one pharmaceutical study revealed that out of 53 'landmark' studies, only 11% of the findings were actually confirmed. As drug discovery programs are informed by results published in the literature, the impact on critical drug discovery pipelines could be severe, potentially affecting the treatment of those afflicted patients in need.

In order to make positive contributions to both the scientific community and society writ large, academic researchers must continue to rely on credible, high-quality protocol sources to ensure reproducibility of their results.

Contact your Wiley Account Manager or email mpabby@wiley.com to receive a price quote for Current Protocols.

References:

Porter, Sheri. "COLA White Paper Urges New Focus on Office Lab Protocols." AAFP.org. <http://www.aafp.org/news/practice-professional-issues/20141117colapaper.html> (accessed January 11, 2017).

Collins, Francis S., and Lawrence A. Tabak. "NIH Plans to Enhance Reproducibility." *Nature* 505.7485 (2014): 612-613. Print.

Pold, Grace. "Nine challenges for an early graduate student." Wiley Exchanges. <https://hub.wiley.com/community/exchanges/discover/blog/2014/03/28/nine-challenges-for-an-early-career-graduate-student?referrer=exchanges> (accessed January 11, 2017).

Dorothy Bishop & The Symposium Steering Group. "Reproducibility and reliability of biomedical research: improving research practice." In *Reproducibility and Reliability of Biomedical Research Symposium*, 4-15. The Academy of Medical Sciences, April 2015. <http://www.acmedsci.ac.uk/viewFile/56314e40aac61.pdf>.