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VIEW ON NEWS

Authentication of experimental materials: A remedy for the reproducibility crisis?

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Reproducibility has always been a serious challenge when medical researchers in both academia and industry have tried to build upon previously published discoveries. Blindly chasing faulty results has incurred a huge waste of human and monetary resources. The damage to the progress of scientific discoveries, as well as their application to human well-being, cannot be overestimated. According to two reports by Bayer and Amgen published in 2011 and 2012, 64—89% of the so-called "landmark" results could not be reproduced in their pre-clinical validation experiments.[1,2] One plausible explanation for this out of proportion irreproducibility is related to the intricacy of the scientific experiments, including the sourcing of reagent antibodies and cell lines, which are major sources of variations. To make validation meaningful, the study materials used in the original studies need to be authenticated so that variations due to the faulty materials can be prevented during follow-up studies. However, the technical complexity and the costs of authentication often discourage this practice in research laboratories. In addition to these obstacles, researchers are left with no standards to follow when validating their reagents and cell lines. Nevertheless, the ever-growing irreproducibility has created a sense of urgency in the medical research field, and the root of faulty science has to be tackled. Two recent commentaries in *Nature* and *Nature Methods* highlighted the importance of the quality control of antibody reagents and cell lines.[3,4] Both commentaries extensively discussed the existing quality problems associated with antibody reagents and cultured cell lines. The authors followed their discussions by advocating policy solutions, as well as feasible standards, towards better authentication and validation. The main impetus of these discussions will certainly raise the awareness of these problems, and may change the attitudes among researchers, toward the goal of improving the sourcing of antibodies and cell lines.

Conflicts of interest

The authors declare no conflict of interest.

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Fei Li*
The Editorial Office of Genes & Diseases, Chongqing, 400046, China

Jim Hu
Department of Pathology and Laboratory Medicine, The Hospital for Sick Children, University of Toronto, Toronto, Ontario M5G 0A4, Canada

Keping Xie
Department of Gastroenterology and Hepatology and Nutrition, The University of Texas MD Anderson Cancer Center, Houston, TX 77030, USA

Tong-Chuan He
Molecular Oncology Laboratory, The University of Chicago Medical Center, Chicago, IL 60637, USA

**Corresponding author.*
E-mail address: fei@genesndiseases.org (F. Li)

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