

Science Policies

Guidelines for Scientific Research (SC-100)

Policy

Purpose

These guidelines describe general standards for conduct in research and scholarship. They are intended to establish a common understanding of expectations and responsibilities relating to research in the Institute's laboratories, thereby promoting the quality and integrity of the work and interactions in the laboratories and helping to prevent scientific misconduct.

Responsibilities of Heads of Laboratories

Although everyone involved in science must take personal responsibility for maintaining the highest standards of integrity, the laboratory head bears ultimate responsibility for the validity of all communicated and published information from his or her laboratory and for the publication of the data that may ensue from work in the laboratory.

The laboratory head should ensure that personnel for whom he or she has responsibility, including associates, students, and technical staff, receive appropriate supervision and training. In particular, the laboratory head should teach and encourage careful scrutiny and interpretation of results, emphasizing the importance of and reliance on sound primary data.

The laboratory head must have a clear understanding of the nature of all primary data generated by his or her personnel, including how these data are acquired, analyzed, and interpreted. As a general rule, primary data generated by less-experienced laboratory members, such as new students or technical staff, and their analysis and interpretation of these data, should be carefully reviewed and evaluated either by the laboratory head or one or more other experienced laboratory members to whom the laboratory head is comfortable entrusting this important function. This kind of review and evaluation will allow the laboratory head to ensure that newer laboratory personnel are receiving the guidance and training they need, and will help the laboratory head to maintain the quality of the laboratory's research.

Laboratory heads should take time to carefully consider the validity and reliability of their laboratory's data, and its analysis and interpretation, and to look into any questions that may arise, before the data, analysis, or interpretation are communicated outside of the laboratory. Questions may arise, for example, not only when primary data seem incorrect, but also when primary data seem too consistent or precise.

Maintenance of Professional Interpersonal Relations

Laboratory heads should encourage their personnel to work with other colleagues, to share data, and to discuss results freely. Although some confidentiality about methods and data before publication may sometimes be prudent, laboratory heads should promote a collegial, open, and professional interaction among scientists and between staff and students.

Documentation and Management of Data

Well-designed and clearly written protocols, careful recording of data as they are gathered, and reliable data storage are essential. Detailed notebooks or equivalent documentation should be kept in a manner such that data can be properly reviewed. Where primary data cannot be kept in notebooks, for example in the case of large electronic datasets, proper documentation and management of the data includes recording the creation date and time, keeping track of all changes made to the electronic data files, and otherwise taking steps to ensure the integrity of the data.

Research should be done with care and with appropriate controls. All experiments should be verified by repetition or subsequent further experimentation prior to publication, and should be reproducible in the same or a different laboratory.

At host-based sites, any policies of the host institution regarding the retention of primary data should be followed. If there are no applicable host institution policies at a host-based site, and at the Janelia Research Campus, original records of primary data that are sufficient to allow the findings of the research to be easily reconstructed should normally be stored by the laboratory of origin for at least seven years after generation, although depending on circumstances a longer retention period may be appropriate (for example, if publication does not occur for some time after generation of the data, or if there is a patent filing). At the Janelia Research Campus, HHMI reserves the right to retain original records of primary data of departing scientists, including laboratory notebooks. In all cases, however, scientists leaving the Janelia Research Campus will be able to retain either the original or a copy of their laboratory notebooks.

Responsibility for Publications

Institute personnel should be scrupulous about crediting the accomplishments of others, especially persons from other laboratories. Publications describing original research should list as authors all those, but only those, who contributed significantly to that research. Acknowledgments may be appropriate for the contributions of others, such as those who provided materials used in the research. All authors whose names appear on a paper should have reviewed the manuscript carefully before its submission for publication and should be prepared to stand behind the conclusions.

On occasion, an HHMI laboratory head may find significant error(s) in one of his or her publications. The laboratory head is expected to exercise sound judgment in deciding what steps, if any, are necessary to address the situation, and to coordinate with other authors and the publishing journal to take those steps. For example, it may be appropriate and sufficient for the journal to issue a correction. In some cases, an HHMI laboratory head may conclude, for reasons ranging from honest error to scientific misconduct, that correction of a publication is not possible, and that the work should not have been published and its data and conclusions should not be used for future research. In these circumstances, laboratory heads should work with other authors and the publishing journal to retract the publication. Laboratory heads should also coordinate with HHMI and host institution personnel in these situations, as appropriate.

See also Science policy [SC-200 – Scientific Misconduct](#)

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