

SCIENTIFIC INTEGRITY: PRINCIPLES & BEST PRACTICES

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In early 2017, a Scientific Integrity Consortium, which includes individuals from the United States and Canadian government agencies, universities, professional societies, non-profit scientific organizations, and others, met to develop a set of principles and best practices for scientific integrity that can be used broadly across all scientific disciplines.

DRAFT PRINCIPLES AND BEST PRACTICES FOR SCIENTIFIC INTEGRITY*

OVERARCHING PRINCIPLES OF SCIENTIFIC INTEGRITY

1. Cultivate a culture of integrity in the scientific process and its incorporation into decision making and public discussion
2. While research results may influence decisions, policies, or public opinion, these interests should not affect research design or results

BEST PRACTICES IN SCIENTIFIC INTEGRITY

1. Require universal training in robust scientific methods, appropriate statistical usage, and responsible research practices for scientists at all levels, with training content regularly updated and presented by qualified scientists
2. Strengthen scientific integrity oversight and processes throughout the research continuum
3. Encourage reproducibility of research through implementation of transparency
4. Establish open data as the standard operating procedure throughout the scientific enterprise
5. Develop educational tools to teach communication skills that uphold scientific integrity
6. Strive to identify ways to further strengthen the peer-review process from grant proposals to publications
7. Encourage scientific journals to publish unexpected outcomes that meet standards of quality
8. Seek harmonization and implementation of processes amongst journals for corrections and/or retraction of published papers that are rapid, consistent, and transparent
9. Design rigorous and comprehensive evaluation criteria that recognize and reward the highest standards of integrity in scientific research

**Principles and Best Practices for Scientific Integrity are still in draft form and a manuscript is in development.*

CONSORTIUM PARTICIPANTS

The Scientific Integrity Consortium meeting on March 2, 2017 included individuals from the following organizations:

- American Association for the Advancement of Science
- American Society for Microbiology
- American Heart Association
- American Gastroenterological Society
- Academy of Nutrition and Dietetics
- American Public Health Association
- Association of Public and Land-Grant Universities
- American Society for Nutrition
- Canadian Institutes of Health Research
- Canadian Nutrition Society
- Center for Engineering Ethics and Society
- Cornell University
- Development, Security, and Cooperation Policy and Global Affairs
- Federation of American Societies for Experimental Biology
- Food and Nutrition Board
- Government-University-Industry Research Roundtable
- International Life Sciences Institute North America
- International Association for Food Protection
- Institute of Food Technologists
- Secretariat on Responsible Conduct of Research on behalf of the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council of Canada, and the Social Sciences and Humanities Research Council
- Tufts University
- University of Alabama at Birmingham
- University of British Columbia
- University of California, Davis
- U.S. Department of Agriculture
- U.S. Department of Health and Human Services Office of Research Integrity
- U.S. Food and Drug Administration

**The opinions expressed were those of the individual Consortium attendees and do not necessarily reflect those of their organization.*

GUIDANCE DOCUMENTS

Prior to the Consortium meeting, a draft set of principles to be used as a starting point for the discussion was developed using...

...principles which emerged from the ILSI North America publication, "Scientific integrity resource guide: Efforts by federal agencies, foundations, nonprofit organizations, professional societies, and academia in the United States"...



Kretser, A., Murphy, D., Dwyer, J. (2017). Scientific integrity resource guide: Efforts by federal agencies, foundations, nonprofit organizations, professional societies, and academia in the United States. *Critical Reviews in Food Science and Nutrition*, 57(1), 163-180. DOI: [10.1080/10408398.2016.1221794](https://doi.org/10.1080/10408398.2016.1221794)

ILSI North America is committed to keeping the "Scientific Integrity Resource Guide" a living document by posting new and additional work on scientific integrity in the 5 sectors on the ILSI North America website twice a year. The first update was published in May 2017 on <http://ilsina.org/>

...and the 6 recommendations identified in, "A framework for improving the quality of research in the biological sciences" by the American Academy of Microbiology, as part of the American Society for Microbiology...



Casadevall, A., Ellis, L. M., Davies, E. W., McFall-Ngai, M., & Fang, F. C. (2016). A framework for improving the quality of research in the biological sciences. *mBio*, 7(4), [e01256-16]. DOI: [10.1128/mBio.01256-16](https://doi.org/10.1128/mBio.01256-16)