Research Integrity
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Integrity is the cornerstone of scientific research. Without it, the complex interweave of the delicate fabric that is scientific research begins to fall apart in often unanticipated and undesirable ways. What we do as individual scientists in terms of the experimental protocols and materials we use, the "facts" on which we base our work, the quality of the materials we produce (software, drugs and reagents, materials, and technical data), the communications we have with others about our work and theirs affects untold others every day. To advance and innovate individually and as a community, we rely strongly on the delicate bond of trust and honesty that exists between us, as members of the greater scientific community.

In this section, we will look at some of the key issues of which you should be aware as an apprentice in the greater scientific research community. Our goal here isn't to tell you what to think, what to do, or to provide you with any magical algorithms or formulas for reaching a decision regarding right and wrong in any situation. You will quickly find that the landscape in scientific research by virtue of its unexplored and often unanticipated nature is fraught with complex, multi-faceted issues. Such issues require thought and may need to be revisited as new data become available. You will find that prior experience, family, culture, and religious beliefs may lead you to at times to a consensus with your peers but at other times to a different viewpoint and/or action than those around you. Consequently, the point is to equip you to think first, ask second, and act third when faced with new, unfamiliar, and often complex ideas and situations. This will enable you to sidestep problems when possible/practical, make wise decisions when challenges arise (and they will), and in the long term equip you to act with moral leadership when called upon to adjudicate the complex challenges of modern research with wisdom, compassion, and personal integrity.

Why Is Research Integrity So Important?

Research integrity is the commitment - sometimes in the face of adversity - to the trustworthiness of the research process by the greater scientific community. It is important - even critical - because the greater scientific community can only innovate and flourish when its members function together as a body to ensure a climate that promotes confidence and trust in our research findings, encourages free and open exchange of research materials and new ideas, upholds personal and corporate accountability, and acknowledges and respects the intellectual contributions of others in the greater community.

References

- Ethics in Science. Avail. URL: http://www.chem.vt.edu/chem-ed/ethics/
- Hinman, Laurence N. Ethics Updates Home Page. Avail. URL: http://ethics.sandiego.edu/
- Kovacs, Jeffrey. The Ethical Chemist. Professionalism and Ethics in Science. Pearson: Upper Saddle River, N.J., 2004.
- Macrina, Francis Scientific Integrity, 3rd ed., ASM Press: Washington, D.C., 2005.
- On Being a Scientist: Responsible Conduct in Research, NAS: Washington, DC, 1995. Avail. URL: http://www.nap.edu/readingroom/books/obas/
- ORI - Office of Research Integrity. Avail. URL: http://ori.hhs.gov/
- Sigma Xi. The Responsible Researcher: Paths and Pitfalls. Sigma Xi: Research Triangle Park, 1999. Avail. URL: http://www.sigmaxi.org/programs/ethics/ResResearcher.pdf
- The On-line Ethics Center at the National Academy of Engineering. Avail. URL: http://onlineethics.org/