Department of Immunology Scholarly Culture and Accountability Plan

The Department of Immunology strives to foster a culture in which the integrity of the research enterprise is of paramount importance. The Department does this by (1) creating an environment in which scientific data are openly discussed and critically examined and in which individuals do not hesitate to raise questions and voice concerns and (2) by encouraging best practices that ensure scientific rigor and proper data provenance.

Creating a culture that encourages open and critical discussion

Outstanding science can only be conducted in an environment that values open and critical discussion. The Department of Immunology provides numerous forums in which scientific data are subjected to critical review.

Trainees regularly subject their data to critical evaluation by presenting (1) to their own research group during laboratory meetings, (2) to other research groups working in related areas during inter-laboratory meetings, (3) to the entire Department during Work-in-Progress seminars, and (4) to the entire Department during our annual poster competition. These activities empower our trainees to critically evaluate scientific data. In addition, trainees participate in regular journal clubs and courses that are specifically devoted to critical examination of the primary literature.

Faculty members are strongly encouraged to have their grant applications read by their colleagues to obtain critical feedback. Junior faculty members are required to have their grant applications read by two or more experienced faculty members.

All members of the Department of Immunology share the responsibility of insuring that the data generated in the Department are of the highest quality and properly safeguarded. If someone has serious concerns about data integrity or scientific or professional standards but is uncomfortable raising these concerns in public or does not feel comfortable discussing these concerns with the investigator, the PI, or other Department faculty, they should approach the Research Quality Officer or the Chairman, without fear of retribution. The Duke Integrity section of the Department of Immunology website provides guidance on reporting concerns, including an online mechanism to report concerns, anonymously or otherwise, to the Chairman:
https://immunology.duke.edu/about-immunology/duke-integrity

Best practices for data management

The integrity and reproducibility of our science is paramount. We hold ourselves to a set of fundamental standards:

1. The faculty member sets an example for their laboratory, through an open and honest discussion of results with an emphasis on data quality and integrity. The priority is to obtain the correct result, rather than the desired result, irrespective of the impact of that result on a preferred hypothesis and/or how it may impact a manuscript or grant submission. Faculty should emphasize the need to openly report and discuss experiments that fail, mistakes that have been made, and hypotheses that turn out to be incorrect. It is an integral part of the scientific process.

2. Every faculty member must implement clear policies and expectations, preferably written (see Data Management Plans below), governing the recording of data in laboratory notebooks. All notebook entries should be made contemporaneous to the work and should be clearly indexed to the raw data if that data is maintained elsewhere. It is the faculty member's responsibility to review laboratory notebooks periodically and especially during meetings with trainees to discuss data. Laboratory notebooks should be maintained long-term either in the laboratory or in Medical

Center Archives. Use of open electronic notebook platforms such as LabArchives is encouraged to enable openness to the quality and content of the research product.

3. Laboratory personnel must maintain all instrument-generated raw data and record the instrument on which it was generated as well as the date and time. This data should be clearly indexed to the laboratory notebook. Any necessary modifications of raw data should be performed on copies of the original data and should be dated and documented. The primary data and any modifications that are used to generate a figure for publication or a grant submission should be easily accessed and readily understood.

4. Laboratory personnel must strive to eliminate sources of bias in experimental procedures and analysis. To the extent possible, collaborators or core facilities should be blinded to experimental treatment groups in materials that you provide.

5. Review and understand the raw data underpinning key experiments performed by your collaborators or provided by core facilities.

6. The PI should guide the researcher in the use appropriate controls, technical and biological replicates, and appropriate statistical analyses. Avoid data exclusion; if data exclusion is necessary, define and report objective procedures for excluding data. Consult with a biostatistician or bioinformatician as necessary.

7. Each laboratory must develop a Data Management SOP that provides specific guidelines for data acquisition, storage and transparency. How are the data collected and stored? How are notes taken and stored? How is analysis done, tracked, and stored? How are figures made and linked to analysis and primary data?

8. All research staff must read the Department of Immunology Scholarly Culture and Accountability Plan and their laboratory's Data Management SOP and must sign the SOP along with the PI to confirm that appropriate training has occurred. The departmental plan will be posted on the Department of Immunology website. Individual laboratory SOPs will be posted on the Research Quality Team folder in the Immunology Private Drive. Signatures affirming that training has occurred will be tracked by the Department Office and will be posted on the Research Quality Team folder in the Immunology Private Drive. Any changes to an established SOP must be communicated by the PI to the staff and will require new signatures, and the updated plan should be shared with the Research Quality Team. Laboratory SOPs will be reviewed by the Chair or the Research Quality Officer and will be the subject of discussion at annual reviews.

9. The Research Quality Officer will serve as "Data Integrity Liaison" to the School of Medicine.

10. If you have concerns about data integrity, in your laboratory or any other, it is your duty to raise them. Depending on your comfort level, approach the individual in question, their supervisor, the Research Quality Officer, the Chair, or report via the SOM Integrity Hotline (1- 800-826-8109). For additional information on School of Medicine policies, please visit https://medschool.duke.edu/research/ethics-integrity-compliance