

## **REDI RECOMMENDATIONS ON DEPARTMENT RESEARCH**

These recommendations are aimed at strengthening research excellence by applying best practices in equity, diversity, and inclusion. Many studies show that there is insufficient consideration of multiple dimensions of a person/tissue/cell's identity (e.g. biological sex, gender, ethnicity, and more) in biomedical research<sup>1</sup>.

Researchers can fill these gaps in knowledge by integrating more dimensions of identity into their research practices. We have organized the recommendations according to different aspects of the research process.

### **Research Question**

1. When working with cells, tissues, and organisms that have two sexes, consider whether biological sex could be included as a variable when developing your research question. When working on human cells, tissues, or individuals consider whether gender and other dimensions of identity (e.g. ethnicity) could be included as a variable in your research.
2. In human work, consider whether there is a population that has been historically understudied and underrepresented that could provide new insight into your research question.
3. For human work, consider the diversity in your cohort (e.g. age, gender, ethnicity) when developing your research question. Socio-cultural factors are also important considerations when working with human cells, tissues, and individuals.

### **Study Design**

4. Capture data in such a way that it preserves information on biological sex, gender, ethnicity, and socio-cultural status of your population to ensure that future analyses may use this information.
5. Wherever possible, ensure your study design is adequately powered to detect modest differences between study populations.
6. Determine whether the data you want to analyze includes metadata on biological sex, gender, etc and plan to apply the appropriate statistical tests to include them as variables in your analysis.

### **Research Team and Environment**

7. Assemble a diverse team and create an inclusive and equitable environment (see Recommendations on Hiring).
8. Develop a mentorship plan for each lab member using resources suggested by REDI committee to ensure that each lab member receives the best support for their learning and research goals.
9. Develop a process for soliciting feedback about research environments within the Department.
10. Where possible, assemble a supervisory committee that is inclusive, diverse, and equitable.

### **Data Collection and Analysis**

11. Collect samples and data such that variables such as biological sex, gender, ethnicity, and others, are preserved throughout the analysis process.
12. Apply the appropriate statistical tests to treat these factors as variables to assess their contribution to a cellular process or health outcome (do not "adjust" for each factor, it should be a variable).

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<sup>1</sup> Rechlin et al. (2021) doi: 10.1101/2021/06/30/450396; Weitowich et al. (2020) doi: 10.7554/eLife.56344; Beery and Zucker (2011) doi:10.1016/j.neubiorev.2010.07.002; Potluri et al (2017) doi: 10.1128/mBio.01868-17; Mamlouk et al. (2020) doi: 10.1016/j.yfrne.2020.100835; Day et al. (2019) doi:10.1186/s41073-019-0068-4

13. Support access of all members of the research team in obtaining cells, tissues, animals, individuals, or analytical tools they need to complete their analyses of how factors such as biological sex influence cellular or biological processes.

### **Research Dissemination**

14. Make sure your research is accessible to all individuals, including but not limited to those with physical or economic barriers.
15. Include and disclose all data collected from all cells/tissues/individuals in publications, even if the data is “negative”. A key barrier in studying cells, tissues, animals from underrepresented groups is lack of information in the published literature<sup>2</sup>.
16. Ensure selection of team members to participate in research dissemination follows best EDI practices.

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<sup>2</sup> Wizemann, T.M. & Pardue, M.L. eds. (2001) The Future of Research on Biological Sex Differences: Challenges and Opportunities. <https://www.ncbi.nlm.nih.gov/books/NBK222296>