

# Ethical Dilemmas at the Beginning of Research

Carlos S. Moreno, PhD  
Associate Professor  
Dept of Pathology & Laboratory Medicine  
  
Genetics and Molecular Biology Program  
Cancer Biology Program  
  
[cmoreno@emory.edu](mailto:cmoreno@emory.edu)

# Choosing a Lab (or even a Field)

## Vertebrate Animal Research

Animal Research is critical for translating discoveries to human patients

All Vertebrate Animal Protocols require approval from Emory IACUC and conform to scientific ethical standards

Different animal models

– fish, mouse, rat, cat, primate

What are you comfortable performing?

# Mentor – Student Relationship

Choosing a Mentor is a BIG decision

Inherently asymmetrical relationship  
– long-term and evolving.

Teacher, Boss, Supporter, Colleague, Friend

Remember they really do have your best interests in mind.  
They want you to succeed. It's a win-win.

What if there's an ethical disagreement?

Up front, honest, and constant communication

# Data Management, Integrity, and Analysis

Your Lab Notebook is CRITICAL. Keep it updated DAILY. Provide sufficient detail that someone ELSE could reproduce your work.

How do you differentiate between a data point from a failed experiment, an outlier, and a real datapoint that goes against your hypothesis? When can you exclude data?

Failed Experiment – Controls don't work

Outlier –  $>1.5$  IQR above third or below first quartile

Caution: assumes normal distribution. Need many data points to justify. Exclusion of outliers often frowned upon.

Best Option: Repeat the Experiment

Real Datapoint – Controls worked, consistent datapoints

# Authorship

What does Authorship mean?

Authors should meet the following three criteria, and all those who meet the criteria should be authors:

- 1) Scholarship: Contribute significantly to the conception, design, execution, and/or analysis and interpretation of data.
- 2) Authorship: Participate in drafting, reviewing, and/or revising the manuscript for intellectual content.
- 3) Approval: Approve the manuscript to be published.

Why does Author order matter?

First author did most of the work. Last author directed the work. People look most closely at your First (and Last) author papers.