

## 7.342 How to Build an Animal: Cell Fate and Identity in Development and Disease

### Week Seven

#### Critiquing a research article

There are varying strategies and approaches for critiquing a research article, depending on available length, what the critique aims to accomplish, and the research article itself. Given the relative short length of the assignment (2 pages double-spaced), it is important to write clearly and tightly.

Here are some questions to consider when critiquing a paper:

- Does the focus of the paper address an overarching gap in knowledge in the field?
- Is the chosen research approach appropriate for the question and hypothesis?
  - Does the model (whether a model organism, *in vitro* culture, etc.) make sense?
  - Do the chosen experiments provide the most direct evidence for their question?
- Does the paper have sufficient evidence to answer their question(s)?
  - Orthogonal types of experiments and data
  - Sufficient positive and negative controls
  - Biological and technical replicates
  - Statistical power
- Are the authors' interpretations and conclusions supported by the data?
- Do the authors sufficiently address any data that might be unusual or inconsistent with their conclusions?
- Do the authors propose future experiments that make sense?

These questions are just a starting point to get you thinking about the paper. There may be other additional types of critique that you find that are relevant to the research paper that you've chosen. The overall goal of the critique is to communicate strengths and limitations of the paper. As a (hypothetical) researcher, what are the salient take-home points of the paper? What does the paper truly add to the scientific field?

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