MIT BE
BIOLOGICAL ENGINEERING

Communication Lab

20.109 Communication Workshop 3: Journal Club

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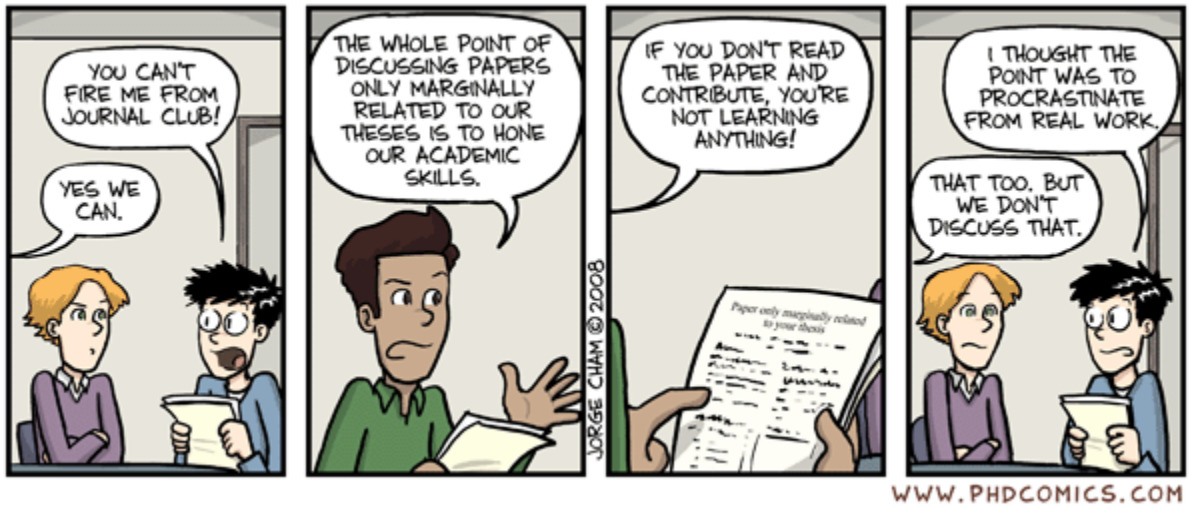
be.mit.edu/communicationlab
Helping you communicate effectively.

How many of you have been to a journal club meeting before?



Why are they useful?

Journal clubs help us learn to evaluate and clearly present scientific work

- Totally transferrable skill
- Helps you communicate YOUR work better
- Learn history or stay up-to-date
- Collaborate to understand

Avoid common 20.109 pitfalls

DON'T	DO
Start so late you don't have time to digest the paper	Give yourself time to read the paper 2-3 times
Be exhaustive List experiments chronologically	Be selective Tell a story
Go outside the 9.5-10.5 minute time	**Practice** until you know you can hit the time limit
Forget to cite the paper	Include citation in your title slide
Say "we did this"	"The authors did this"
Use illegible labels	Use ≥20pt font Make your own figure labels if helpful Use legible font colors

Skills we'll discuss today

1. Crafting a story
2. Identifying key parts of a scientific work
3. Designing effective slides
4. Presenting well

Be a human.

1. Tell us a story.

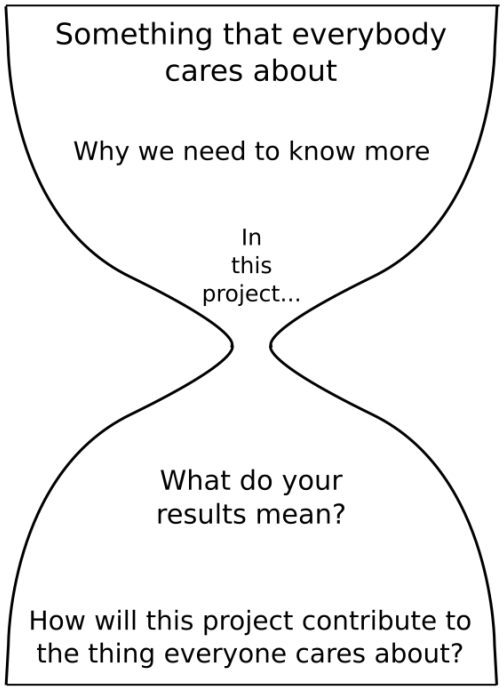
"Excellent students tell a story."

-Noreen

You only have 10 minutes for your journal club presentation.

What content will you include?

Recall the Hourglass Model for Abstracts



Introduction	• introduce yourself and credit the authors of the paper • clear and concise description of the central question addressed by the paper, *and* its significance • contains sufficient background needed to understand the results	(15)
Methods	• gives information necessary (and no more!) to understand results • shows overview of experimental flow/approach if appropriate	(10)
Data	• related to central question • complete and concise explanations • integrated results + discussion	(30)
Summary/Conclusions	• key findings reiterated and put into context of past and/or future work	(5)

Chronology confuses us

The authors wanted to engineer a calcium sensor's binding sensitivity.

They ligated DNA into a plasmid,

then they transformed it into cells,

and then they looked at fluorescence data.

But WHY?

Convey logic & motivation with a story

The authors wanted to engineer a calcium sensor's binding sensitivity.

To change the binding site, they did site-directed mutagenesis,

then they expressed the mutant protein in cells,

and then they assessed its binding properties with a fluorescent assay.

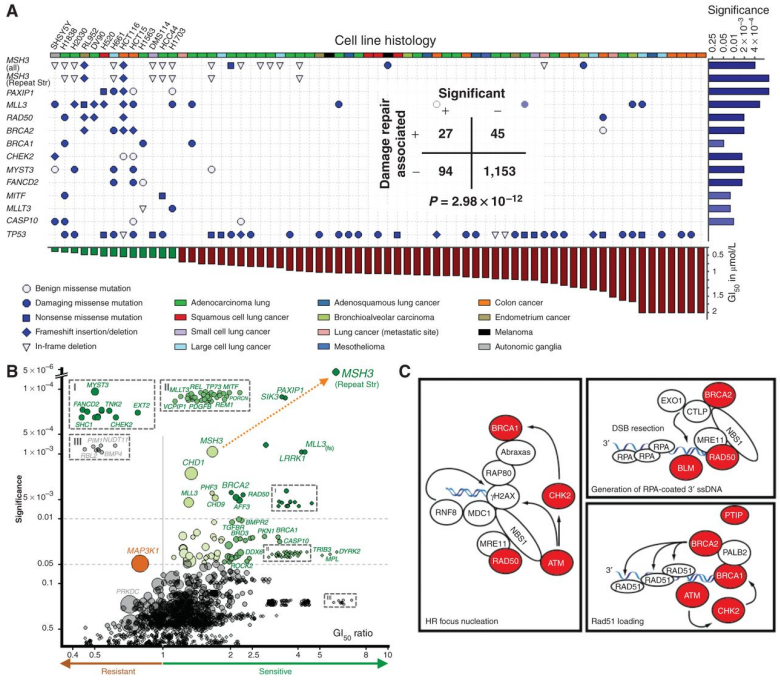
Tell us a story

- Identify the question/message
- Include only essential results
- Connect all results back to the question/message
- Use titles & transitions that explain logic & motivation

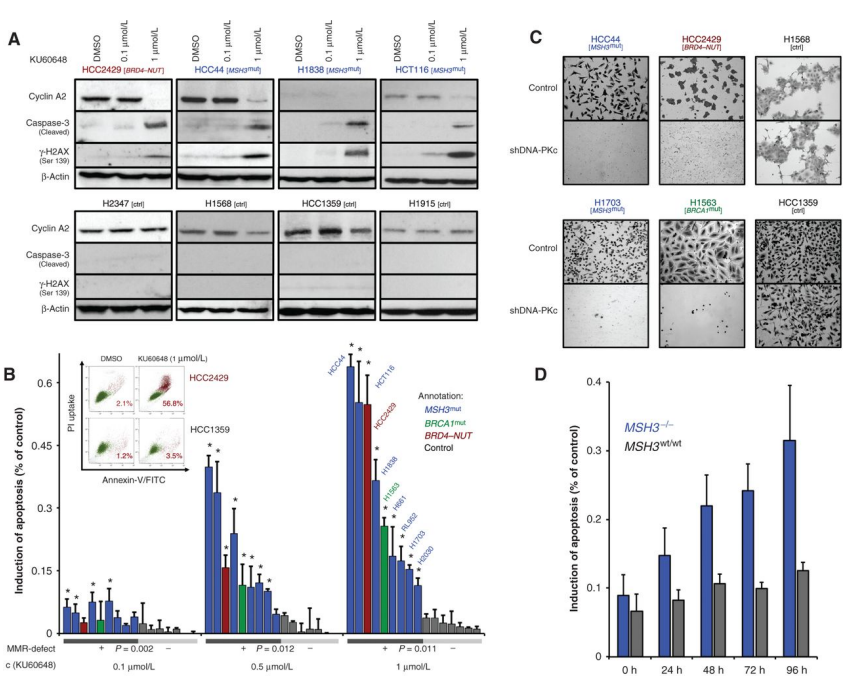
2. Connect with us, don’t overwhelm us.

Activity: You only have 10 minutes for your journal club presentation.

What content will you include?
Which 2-3 figures (or parts of figures) would you choose to present?
What is their significance to the main question?



Biologic activity of the DNA-PKcs inhibitor KU60648 associates with mutations in DNA repair genes.



Functional and genetic validation of KU60648 activity across MSH3-mutated and Msh3-deficient cell lines.

Example: Converting a paper figure to a presentation figure

Susan McConnell (Stanford)

Designing effective scientific presentations

https://youtu.be/Hp7Id3Yb9XQ?t=1150

Simplify & break up figures to avoid overwhelming your audience.

"What would help my audience understand this faster?"

If you're not going to talk about it, leave it out.

- **Title** = take-home message
- Show **minimal essential data**
- **Maximize signal-to-noise**
  - Control viewing pace: separate/mask panels
  - add/move/remove labels (Noreen pet peeve)
- **Effective redundancy**: align visual, written, & oral

Make slide titles take-home messages

	DON'T use	DO use
	General descriptions	*Sentences that answer "so what?"*
Methods	EMK-1 Knockdown	EMK1/Par1 was knocked down in MDCK (kidney) cells using siRNA
Results	Ca-switch	MDCK cells form a lumen after changing extracellular [Ca^{+2}]
	Mitochondrial ROS induction in cell lines	Mitochondrial ROS induction is decreased in adk^{-} cells
	Comparison of primer specificity	Primer 1 is better than Primer 2 at differentiating closely-related HIV strains

Avoid light or bright colors and tiny fonts

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

PowerPoint basics:
3. Style

Don't drown the audience with data.

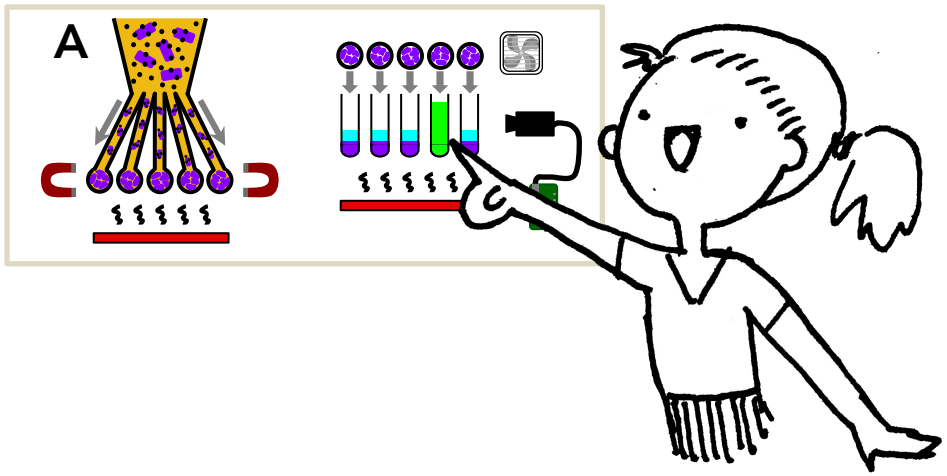
Less is more.

3. Be respectful of yourself, authors, and the audience.

We’re a friendly audience, help us out

- Give yourself **time to understand** the paper.
- **Practice** the take-home messages and transitions
- **Record yourself** for **10-minute** timing
- If you’re **not going to talk about it, it doesn’t belong**
- We’ll ask you about **methods**

You can also use gestures to guide the audience through complicated data.



Manage nerves by accepting them

Be **kind** to yourself.

Everyone gets nervous. Don't fight it.

"I'm nervous because I'm **excited** *to present."*

Channel it into positive things: **steady breathing** and **eye contact**

In Q&A: Give yourself time to think.

Make sure you understand the question (maybe restate or paraphrase).

Be a human.

Tell us a story.
Connect with us, don’t overwhelm us.
Be respectful of yourself, authors, audience.

Additional help

- Practice your presentation with a Communication Fellow http://be.mit.edu/becommunicationlab
- Tips for reading papers:
  http://www.sciencemag.org/careers/2016/03/how-seriously-read-scientific-paper
- Susan McConnell (Stanford), *Designing effective scientific presentations* https://youtu.be/Hp7Id3Yb9XQ