MIT SCHOOL OF ENGINEERING

COMMUNICATION LAB

20.109 Communication Workshop 3: Journal Club Presentation

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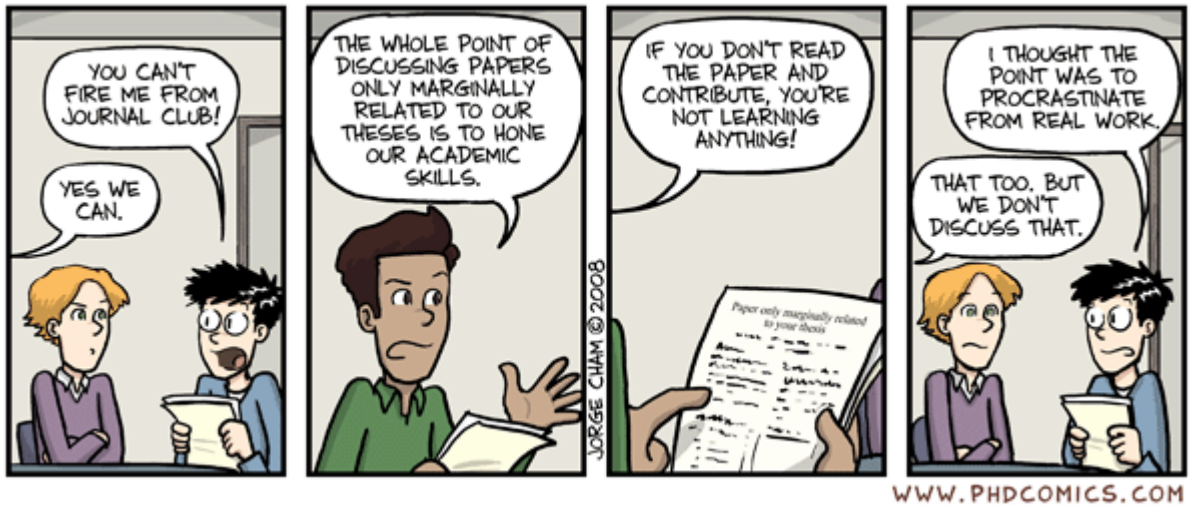
mitcommlab.mit.edu/be

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



Why are they actually useful?

Journal clubs require you to identify & efficiently present the most important parts of a scientific work.

- Crucial skill for communicating your own research
- Required professional activity
  - Stay up-to-date with the field
  - Learn collaboratively

Review assignment rubric

Category	Elements of a strong presentation	Weight (%)
Knowledge and explanation of subject matter:	• conveys *big picture* understanding • presents the essential information (saves minor details for Q&A) • accurate description of facts, procedures, hypotheses, etc.	65
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)
Q&A	• answers that convey understanding • when you lack knowledge, tell how you would approach the question based on what you *do* know	(5)

Overall organization of talk	• logical, easy-to-follow narrative • main points emphasized, repeated (preview/tell/review) • transition statements between ideas	10
Overall effectiveness of slides (text and visuals)	• slide titles convey key message • good balance of text and figures • text/figures large enough to be seen (including axis labels!) • considered use of color • not too many or too few slides	15
Overall effectiveness of delivery	• confident, enthusiastic delivery • main points verbally emphasized • get to main points quickly • strong eye contact • limited gestures • use of both technical and informal language as appropriate • 10' length (+/- 0.5 min)	10

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 **2-3x**
Be exhaustive; list experiments chronologically	Be selective; tell a story
Go outside the 9.5-10.5-minute time limit	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 tiny, blurred, otherwise illegible labels	Use ≥20pt font Make your own labels for figures as necessary Use legible font colors

Skills we'll discuss today

1. Crafting a story
2. Identifying key parts of a scientific work
3. Slide design
4. Oral presentation

Additional help

- Practice your presentation with a Communication Fellow
  http://mitcommlab.mit.edu/be
- Susan McConnell (Stanford):

  Designing effective scientific presentations
  https://youtu.be/Hp7Id3Yb9XQ

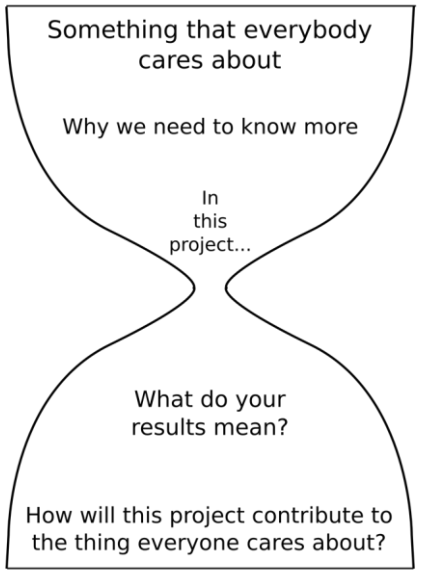
1. Craft a story

"Excellent students tell a story." -Noreen

You only have 10 minutes for your journal club presentation.

What content would you include?

Recall the Hourglass Model for Abstracts



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Craft a story: Avoid chronological lists of methods.

The authors made cells take up a pRSETb_FKBP12 plasmid.

They added IPTG and lysed the cells,

then added the lysate to nickel-coated beads.

Finally, they ran a polyacrylamide gel.

But WHY?

Craft a story: Convey logic + motivation

The authors wanted to find small-molecule ligands for protein FKBP12.

To obtain the protein, they expressed it in cells via a plasmid and purified it.

Next, they assessed the protein's purity with a polyacrylamide gel.

They concluded that the protein was sufficiently pure to be used with the Small-Molecule Microarray.

Craft 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

Make the story memorable: Consider creating a schematic to summarize major questions / experiments.

Experimental setup: Testing Cell Line A and Cell Line B

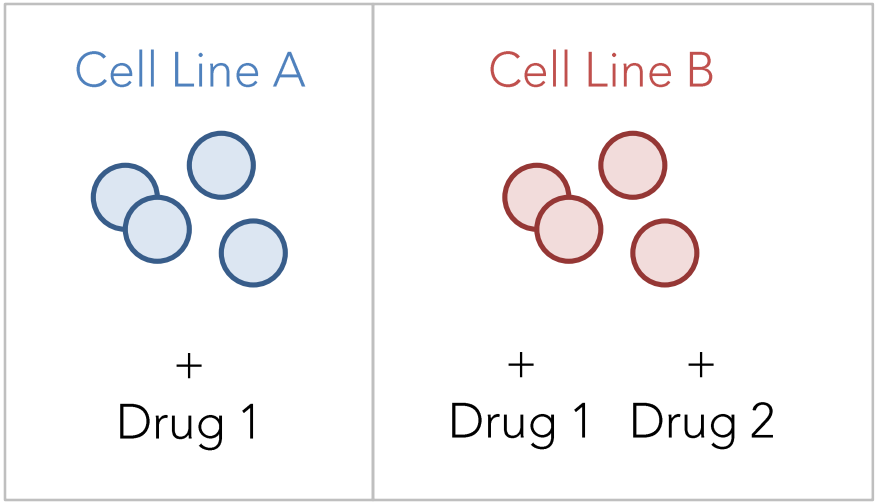
1. Line A treated with Drug 1
2. Line B treated with Drug 1 and Drug 2

Make the story memorable: Consider creating schematics to summarize major questions / experiments.

Experimental setup: Testing Cell Line A and Cell Line B

1. Line A treated with Drug 1
2. Line B treated with Drug 1 and Drug 2

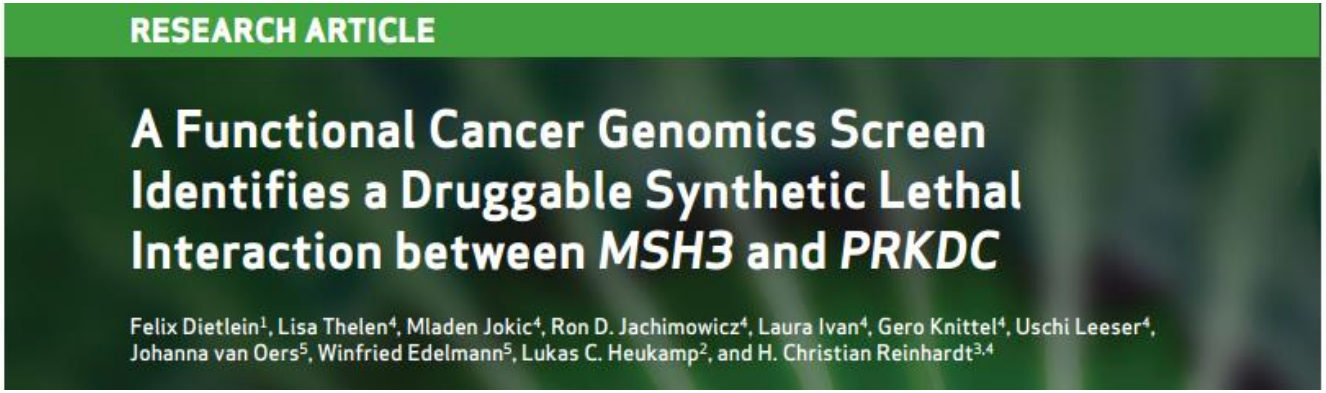
Does Cell Line B's mutation cause a different reaction to a 2-drug treatment?



2. Identifying the key parts of a scientific work

Activity: Presenting Dietlein, *et al.*

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



M2D3 Homework: To help you prepare for the Journal Club presentation, you will craft a single slide using the data from the publication by Dietlein *et al.* that was reviewed last week.

Overall effectiveness of slides (text and visuals)	• slide titles convey key message • good balance of text and figures • text/figures large enough to be seen (including axis labels!) • considered use of color • not too many or too few slides	15

3. Slide design

Slide design: use the same principles as figure design

- **Titles** = take-home message
- Show **minimal essential data**
- **Maximize signal-to-noise**

Simplify & break up figures to avoid overwhelming your audience.

Example: converting a paper figure to a presentation figure

Susan McConnell (Stanford)

Designing effective scientific presentations

https://youtu.be/Hp7Id3Yb9XQ

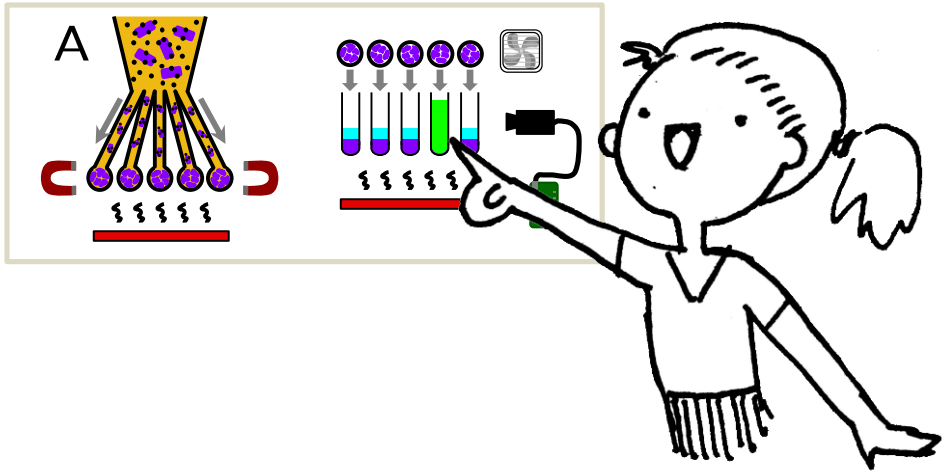
(start: 19:09)

Simplify & break up figures to avoid overwhelming your audience.

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

"What would help my audience understand this faster?"

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



Title = take-home message

DON'T		DO
General heading only	*Descriptive*	*Take-home message; "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, bright font colors.

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Activity: Presenting Dietlein, *et al.*

Pick one figure and break it down as you would for a slide (M2D3 homework)

- Title = take-home message
- Show minimal essential data
- Remove clutter, improve clarity
  - Separate/mask panels
  - Add/remove labels
- Effective redundancy: align visual, written, & oral

"What would help my audience understand this faster?"

4. Oral presentation skills

Overall effectiveness of delivery	• confident, enthusiastic delivery • main points verbally emphasized • get to main points quickly • strong eye contact • limited gestures • use of both technical and informal language as appropriate • 10' length (+/- 0.5 min)	10

Q&A	• answers that convey understanding • when you lack knowledge, tell how you would approach the question based on what you *do* know	(5)

Manage nervousness by accepting that you *will* be nervous.

- Be kind to yourself.
- Use your nervousness for energy instead of trying to suppress it.

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

- Q&A: Give yourself time to think before answering.

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