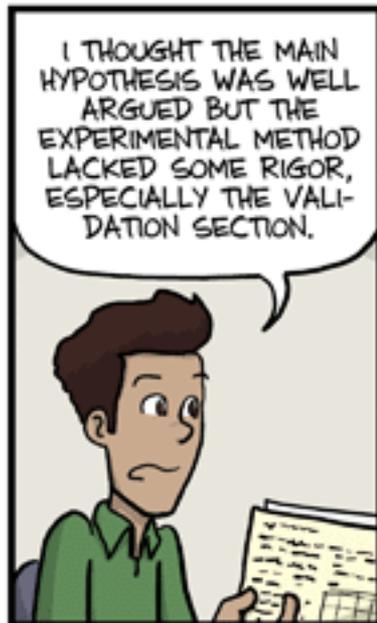


# 20.109 Communication Workshop 3: Journal Clubs

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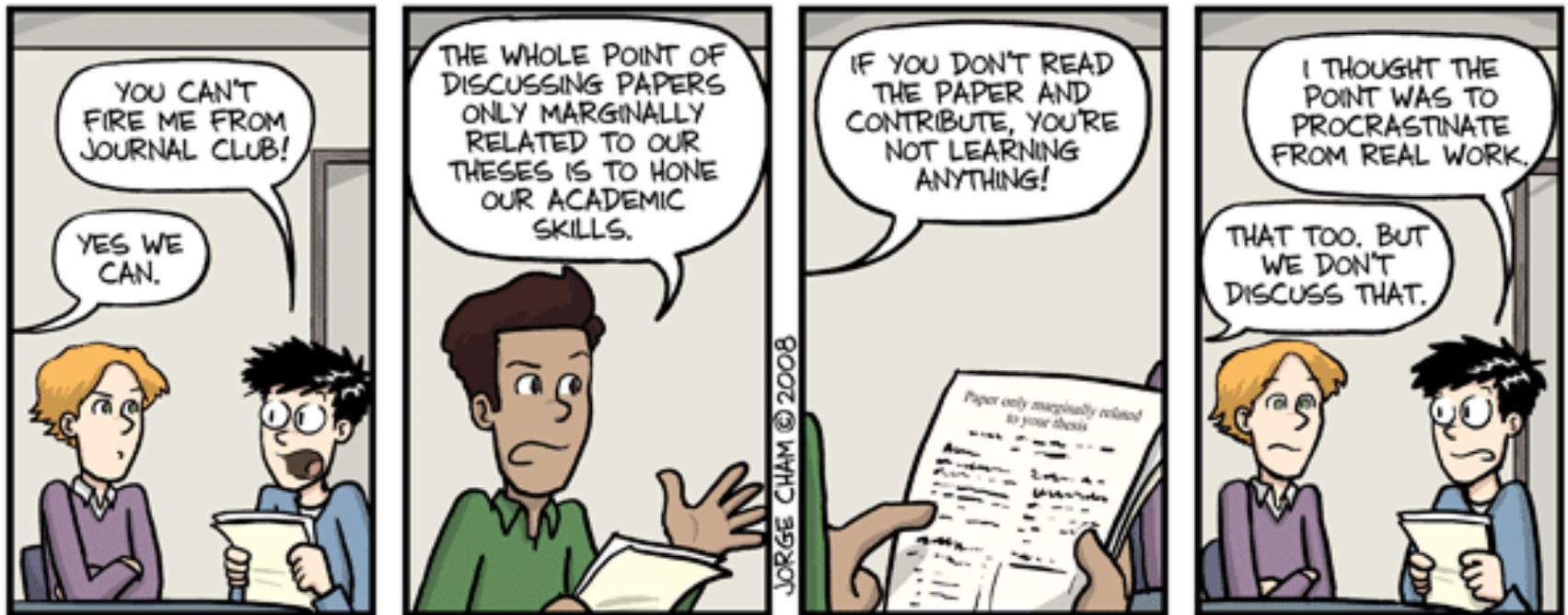
<https://mitcommlab.mit.edu/be/>  
Helping you communicate effectively.



JORGE CHAM © 2008

Who has been to a journal club before?

What are they like?



# Journal clubs build transferable **skills**



- Critically evaluate a paper to see how work has been done
- Learn to communicate YOUR work better

# Journal clubs have different **objectives**

- learn a field
- explain a method, how to apply it
- make sure people read a really important paper
- determine how close a project is to your story

## **20.109 goals**

Show that you understand the paper by presenting clearly:

- the take-home message
- WHY and HOW the experiments were done (**METHODS!**)
- what the conclusions were

# Today, we will cover 3 aspects of presentation prep

1. Craft a story
2. Design effective slides
3. Present your slide deck clearly

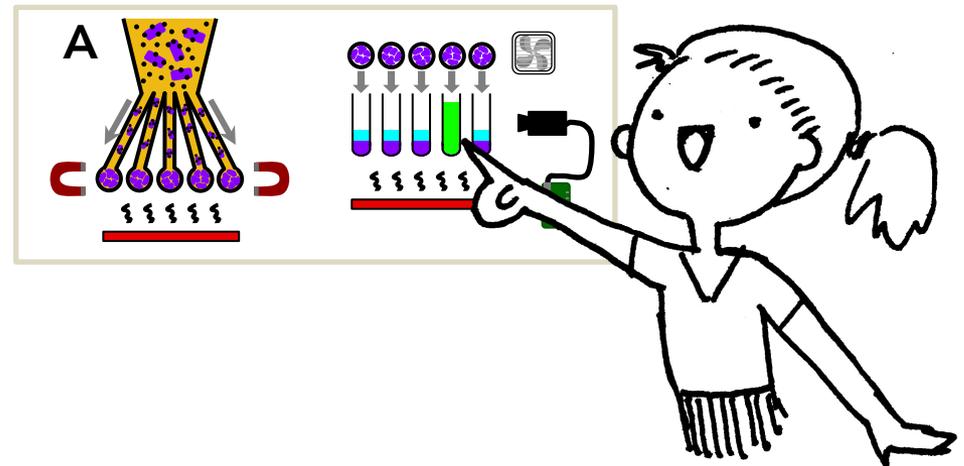


Image: Diana Chien

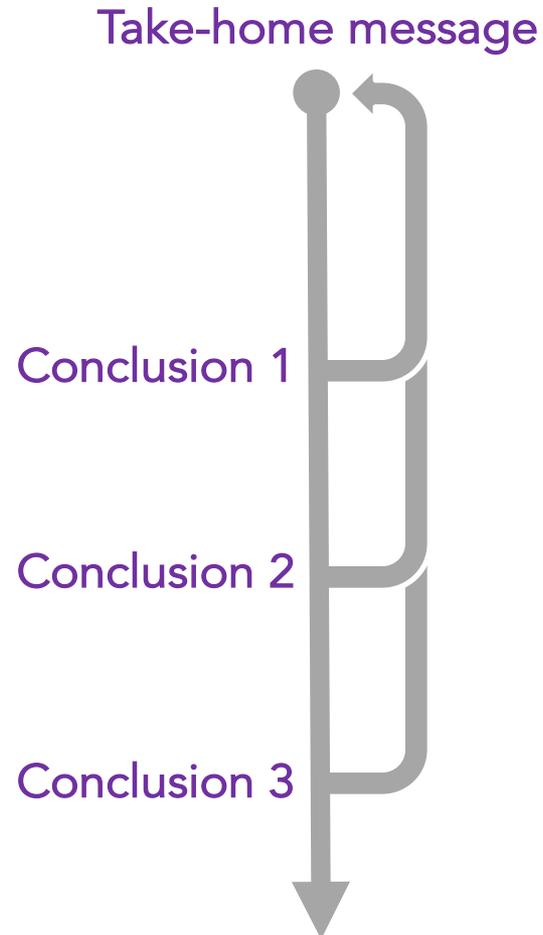
# 1. Craft a storyline from the paper

“Excellent students tell a story.”

-Noreen

# Create a single storyline.

Identify a **take-home message**; everything else leads to it.



# Chronology is actually confusing



The authors ligated DNA into a plasmid,  
then they transformed it into cells,  
then they looked at fluorescence data,  
and then they had a calcium sensor.

But why did they do these things?

# Storytelling conveys logic & motivation



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

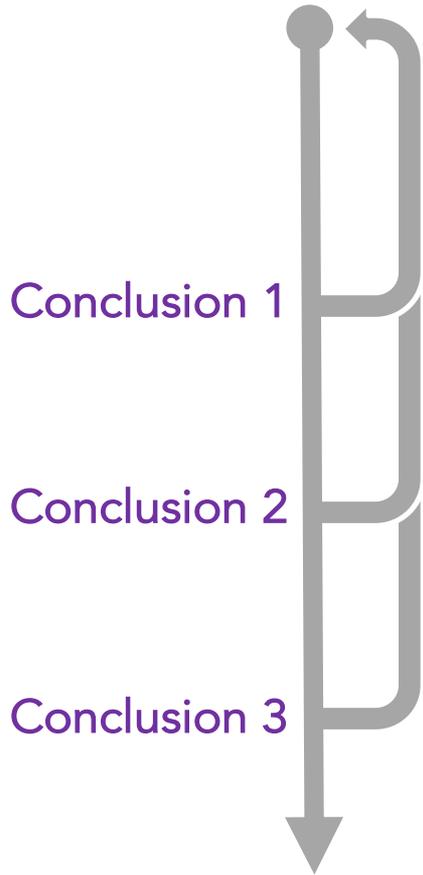
To change the binding site, they did site-directed mutagenesis,

then they expressed the mutant protein in cells,

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

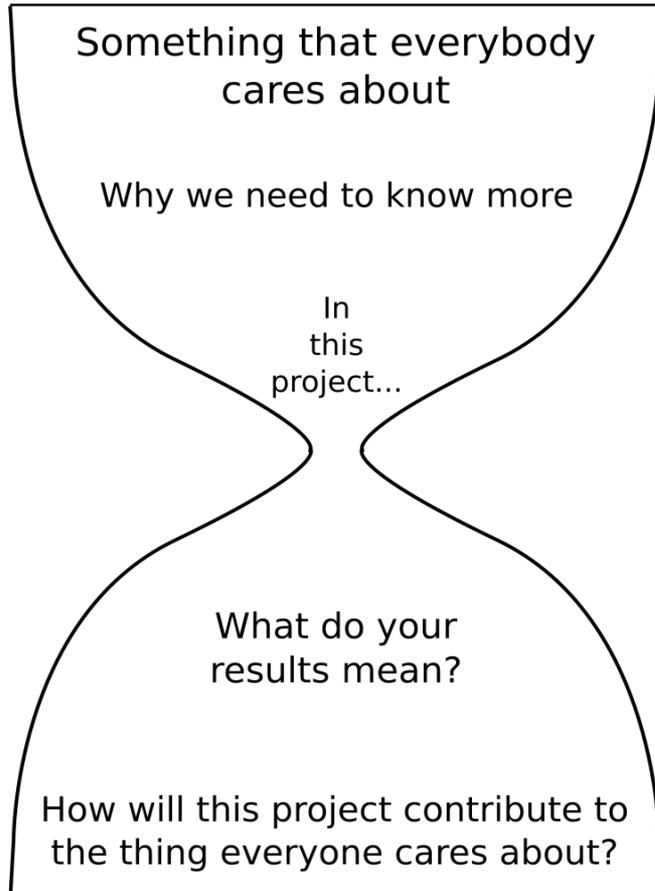
# Organize your journal club presentation to **tell us a story**

Take-home message



- Identify the question/message
- Include only essential results, key experiments and relevant data
- Connect all results back to the question/message
- Explain logic & motivation with titles & transitions

# The hourglass structure from abstracts can help with storyline.



**General background**

**Specific background**

**Knowledge gap, Unknown**

**HERE WE SHOW...**

**Results**

**Implication**

**Significance**

# Activity

What storyline would you use for this paper?

## **A Functional Cancer Genomics Screen Identifies a Druggable Synthetic Lethal Interaction between *MSH3* and *PRKDC***

Felix Dietlein<sup>1</sup>, Lisa Thelen<sup>4</sup>, Mladen Jokic<sup>4</sup>, Ron D. Jachimowicz<sup>4</sup>, Laura Ivan<sup>4</sup>, Gero Knittel<sup>4</sup>, Uschi Leiser<sup>4</sup>,  
Johanna van Oers<sup>5</sup>, Winfried Edelmann<sup>5</sup>, Lukas C. Heukamp<sup>2</sup>, and H. Christian Reinhardt<sup>3,4</sup>

What content will you include?

Which parts of the figures would you choose to present?

What is their significance to the main question?

## **2. Design effective slides to convey the story**

# Good slides are a lot like good figures

**Title** = take-home message

Show **minimal essential data**

**Maximize signal-to-noise**

Control pace: separate or mask figure panels

Add or remove labels

**Effective redundancy:** align visual, written, + spoken!

“What would help my audience understand this faster?”

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

# Make slide titles take-home messages

**DON'T use**

*General descriptions of "what"*

**INSTEAD use**

***Sentences that answer "so what?"***

Method 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 calcium concentration**

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**

# Use all parts of your slide to support your message.

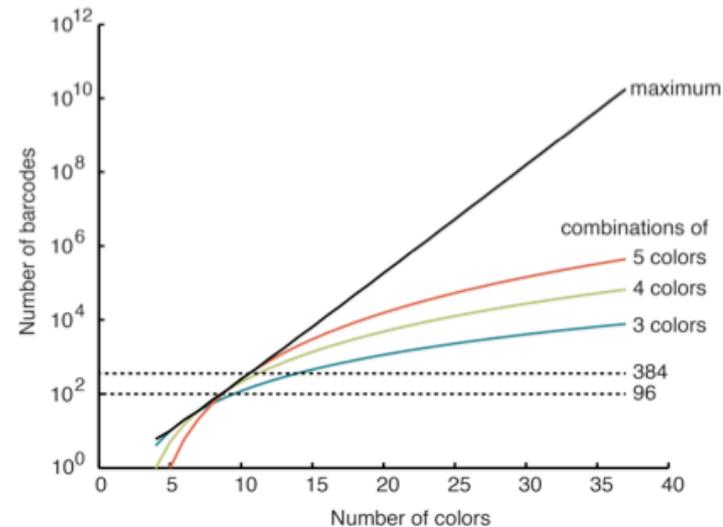
The **title** conveys the “so what”

**One message per slide:** only include data that supports that message

**No unnecessary content:** only figures you discuss

**Text** supports the message, not a script (make sure font size is large enough!)

Optical barcoding scheme is easily scalable to ultrahigh library complexity (>384 combinations)



Only 9 colors needed for library of 96  
Only 11 colors needed for library of 384

# Avoid light or bright colors and tiny fonts

Am I legible?

# Templates are visual noise.

My name - Today - Where we are



## PowerPoint basics: 3. Style

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Don't drown the audience with data.

Less is more.



Susan McConnell (Stanford),  
*Designing effective scientific presentations*  
<https://youtu.be/Hp7ld3Yb9XQ>

## **Activity:**

How would you improve your slide(s) for Figure 2?

Think about the tricks we just discussed!

**3. Present your story clearly**

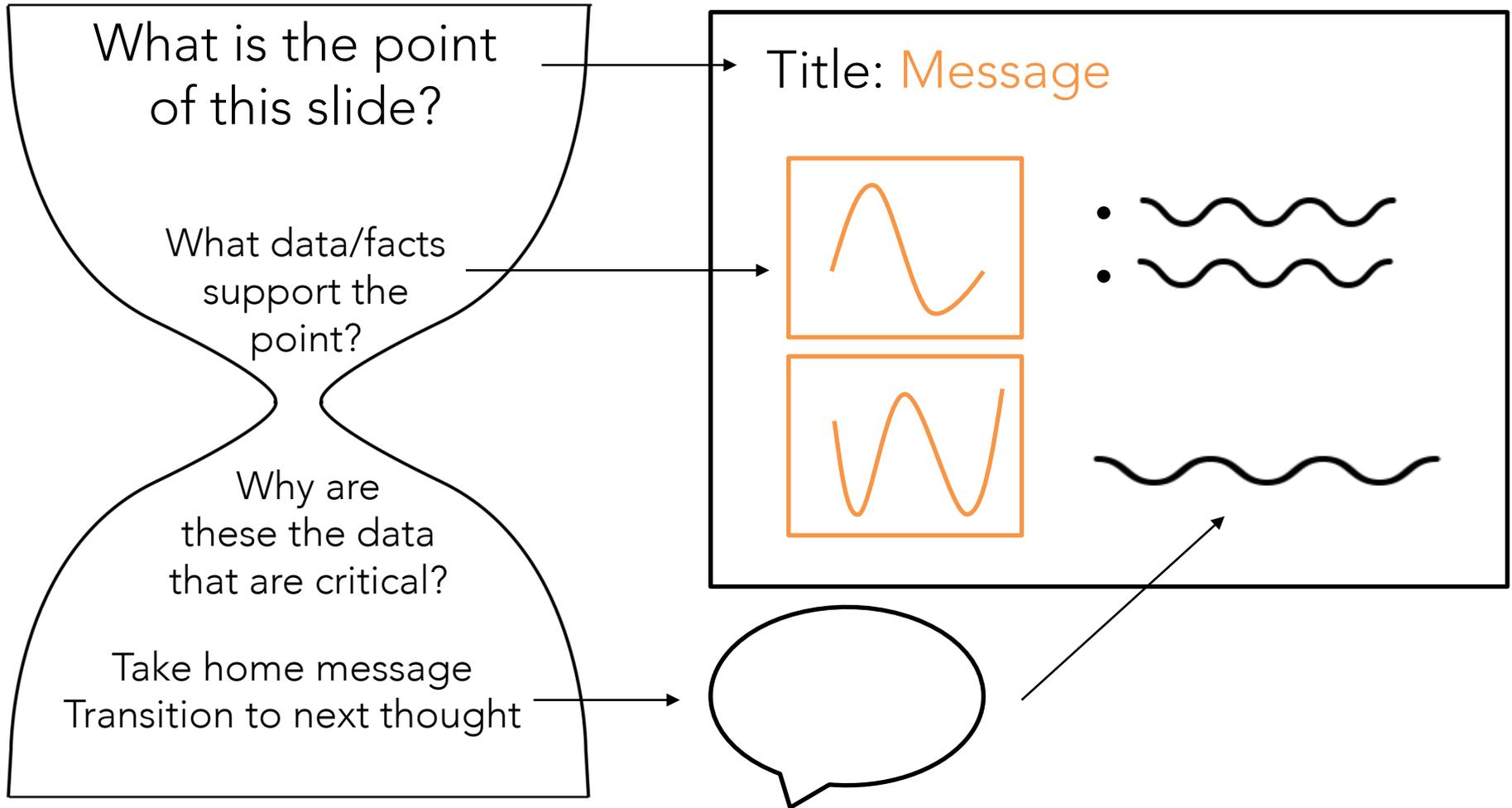
# We're a friendly audience, so help us out



- **Practice** the take-home messages and transitions
- **Record yourself** for **10-minute** timing
- If you're **not** going to talk about it, **take it out**

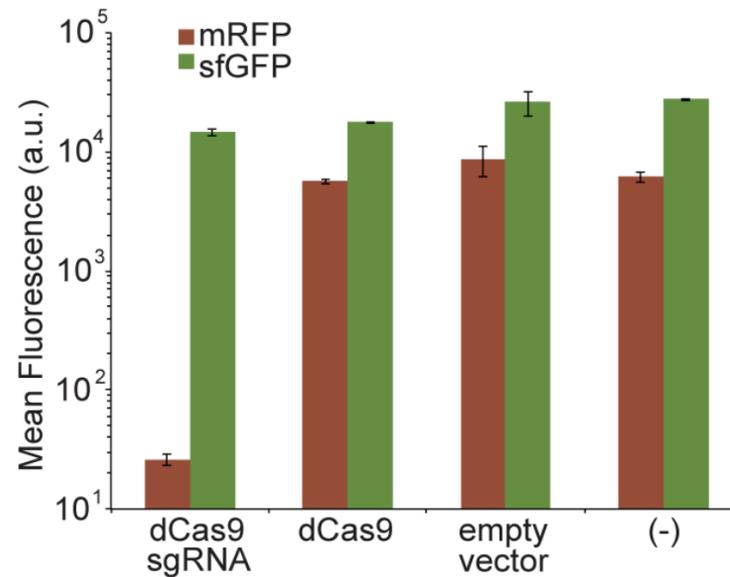
We'll ask you about **METHODS**

# Think about what you'll say with each slide!

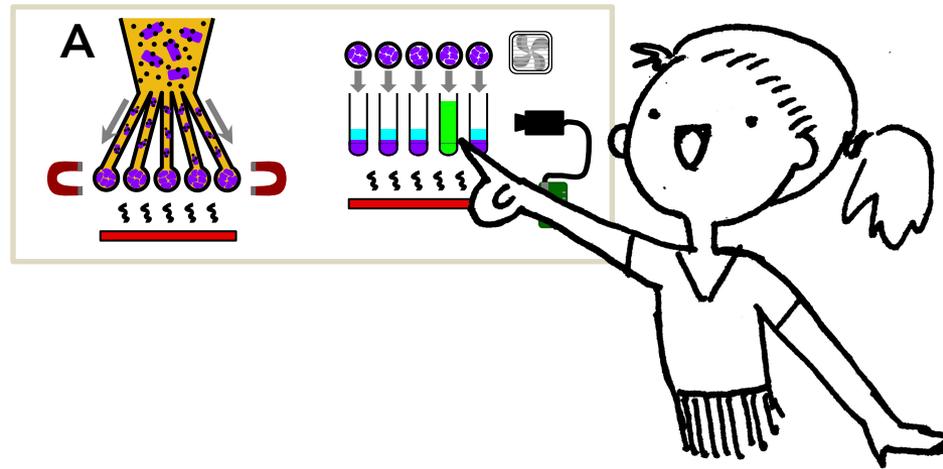


# How would you present this slide?

Conjugation of the CRISPRi plasmid allows for specific suppression of mRFP



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



# Manage nerves by accepting them

Who doesn't get nervous?



Reframe it:

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

Channel the feeling, don't fight it.

**steady belly breathing**

**eye contact**

Be **kind** to yourself.

We have questions, you have answers

**Q&A is a critical part of presentations.**

Let the questioner finish.

Give yourself time to think.

Make sure you understand the question.

Do your best, use reasoning, but don't guess.

(What goes on the screen?)

# Avoid common pitfalls

## DON'T

Start so late you don't have time to digest the paper

Be exhaustive  
List experiments chronologically

Lose points for time (9.5-10.5 min)

Forget to cite the paper

Say "we did this"

Use illegible labels

## DO

Give yourself time to read the paper  
2-3 times

Be selective  
Tell a story

**Practice** until you know you can hit the time limit

Include citation in your title slide

"The authors did this"

Use  $\geq 20$ pt font  
Make your own figure labels if helpful  
Use legible font colors

# Getting help is a sign of strength!

Ask us if you are unsure or have a different idea

Practice your presentation with a Comm Fellow  
<http://be.mit.edu/becommunicationlab>

Watch the rest of

*Designing effective scientific presentations*  
<https://youtu.be/Hp7Id3Yb9XQ>

Susan McConnell, Stanford