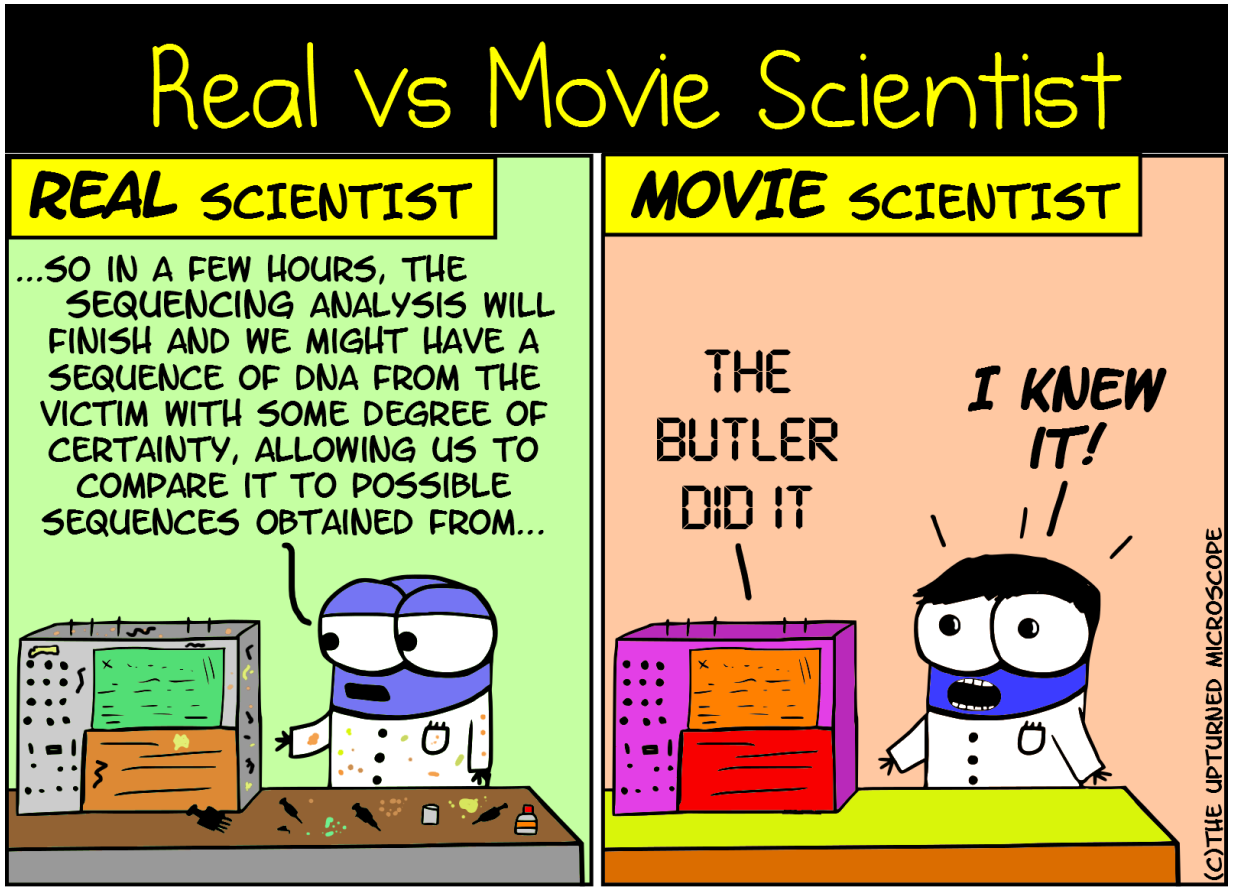
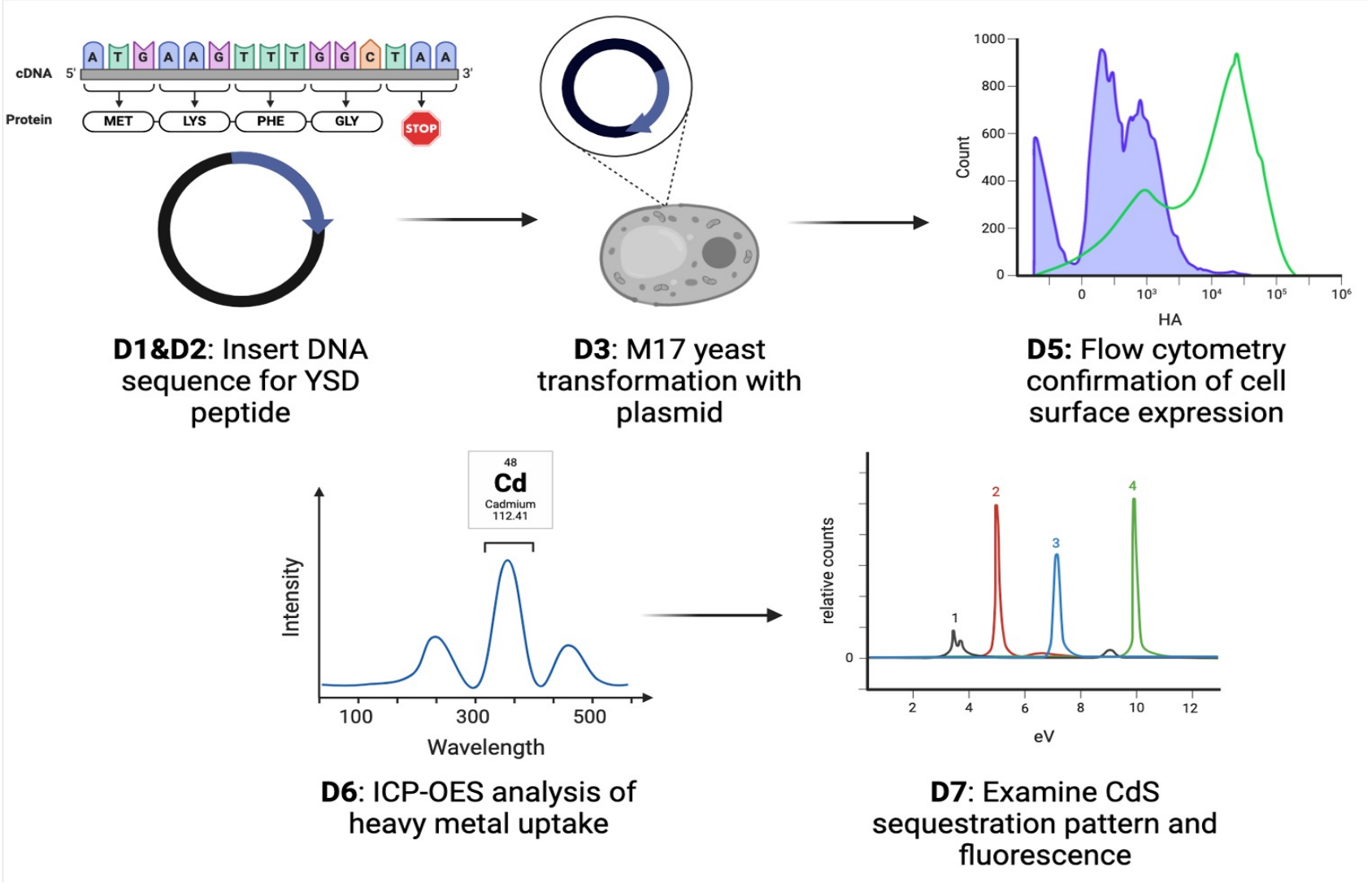
M2D4: Align sequencing and prepare for Journal Article presentations

1. Prelab discussion
    1. JA presentation notes
2. Align Sequencing
3. Comm Lab workshop



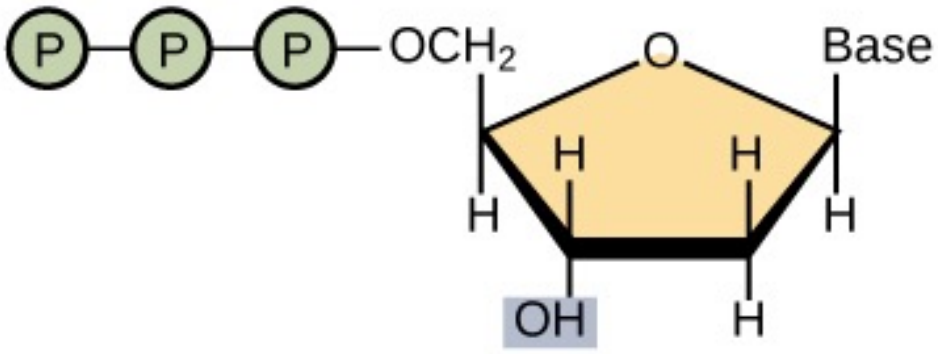
Overview of Mod 2 experiments:



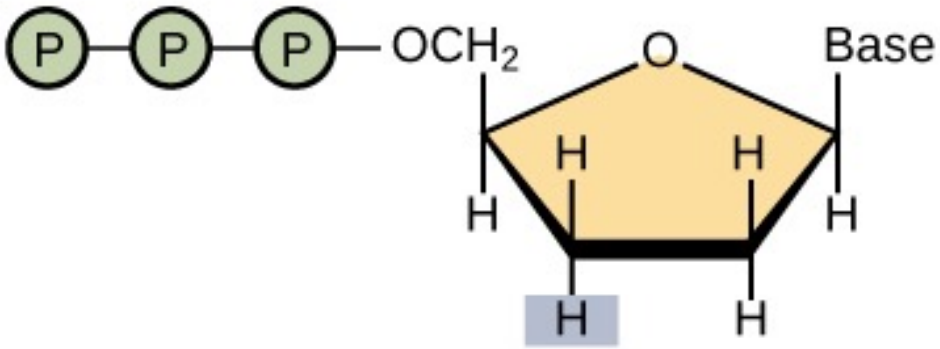
Modified bases used in sequencing reactions

- DNA polymerase acts at 3’ OH of growing DNA strand to create phosphodiester linkage with 5’ P of incoming nucleotide

- Dideoxynucleotides lack OH group needed to extend sequence
  - Causes growing DNA strand to terminate

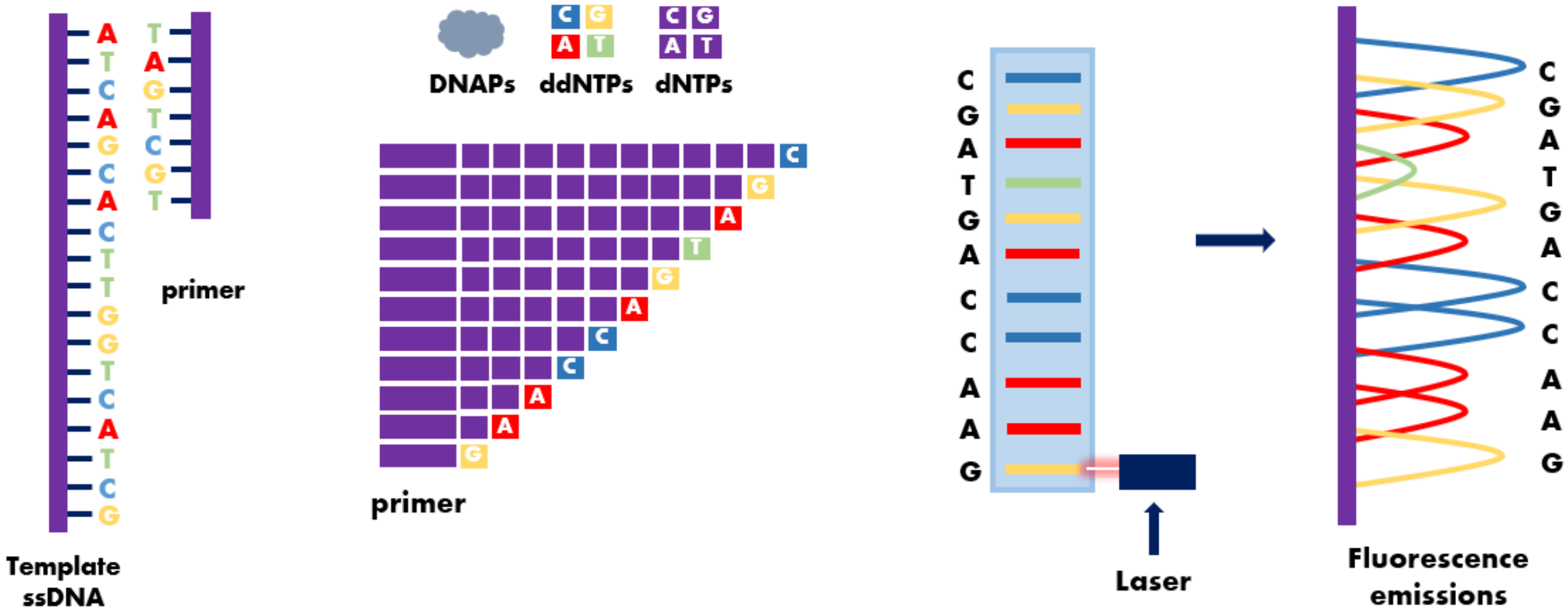


Deoxynucleotide (dNTP)



Dideoxynucleotide (ddNTP)

How is sequence determined using DDNTPs?



For today…

- Align the sequencing results you generated in M2D3

- Comm Lab workshop

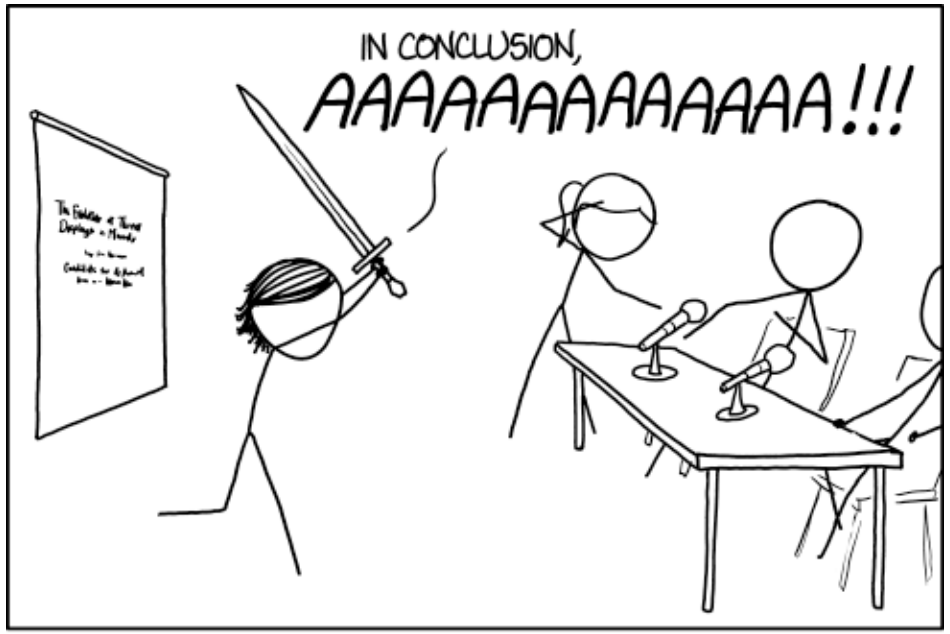
For M2D5 (Tuesday 4/9 – AFTER JA presentations)

- Outline the Introduction for your Research Article
  - Use place holders for Here we show…
    - and any other information we don't yet have that you want to include

- Create a Data Figure (with title and caption) of sequencing data

Notes for the Journal article presentation

- Review Comm Lab workshop slides and workshop notes
- Complete **individually**
- Slides **due by 12p** on your presentation date
- Submit slides to Canvas
  - These slides will be downloaded to a common presentation computer
- **Ask questions** after peer presentations
- **Meet with Noreen** to review / discuss your presentation



THE BEST THESIS DEFENSE IS A GOOD THESIS OFFENSE.

What day will you present? (not in this order)

Tuesday April 2

- Kate
- Tyler
- Emily
- Nathan
- Alisha

Thursday April 4

- Catherine
- Sheikh
- Sean
- Diamond
- Josh
- Harley

How will we determine the order?

How will you communicate *their* science?

Format considerations [edit]

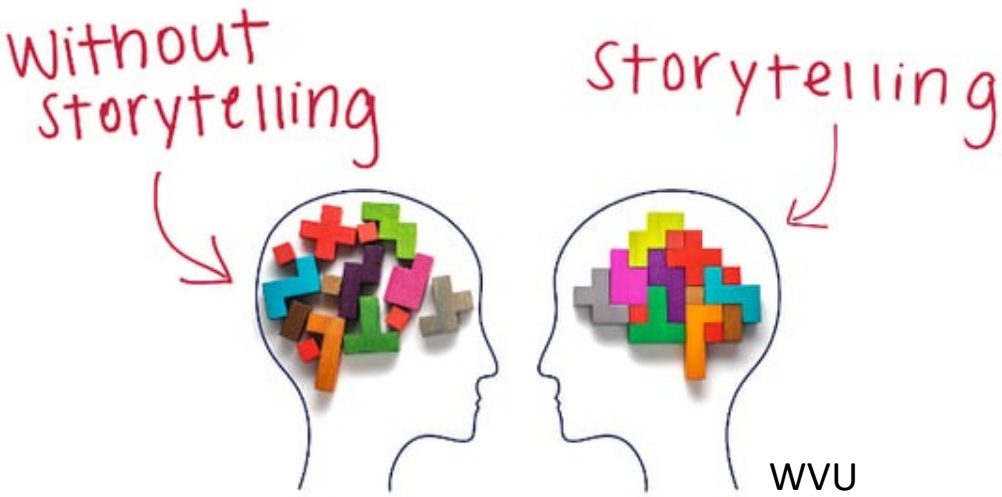
The timing provided here is a guideline for a 10-minute presentation. Your presentation may vary depending on the content.

Section	Minutes	Number of slides	DO	DON'T
Introduction	~2	2-3	• Introduce the key concepts that the audience will need to follow your presentation. • Briefly state the overall scope and significance of the study -- what is the central question and why is it interesting? • Try to summarize background material with a model slide rather than lines of text. If text is needed, bring in the details as you speak using PowerPoint animation.	• Don't assume you are addressing an expert audience. • Don't give more information than is absolutely needed to understand the rest of your talk. • Don't put too much information on each slide.
Data	~7	4-6	• Present the data in a logical sequence, letting each slide build upon the previous ones. • Include a title for each slide. The title should be the conclusion and should be unique to the information on the slide. • Make every element of your slide visible to the entire room. This means 20-point font or greater. • Interpret each slide thoroughly and carefully. • Point out strengths and weaknesses of the data along the way.	• Don't read your talk. Similarly, do not read lists from slides. • Don't put much information on each slide. Each slide should make only one point. • Never say, "I know you can't read this, but...". Everything on each slide should be legible. • Don't be afraid to remind the audience how the data fits into the overall question
Summary	~1	1	• Review each of your main messages. • Clearly state what the study contributed to the field.	• Don't repeat experimental details.
Question & Answer	?	0	• Answer the question being asked. If you are unclear about the question, ask for clarification. • Respect every question and questioner.	• Don't take too long with one question. If the discussion is involved, suggest meeting after the talk to discuss it more.

How will you report data?

Storytelling!

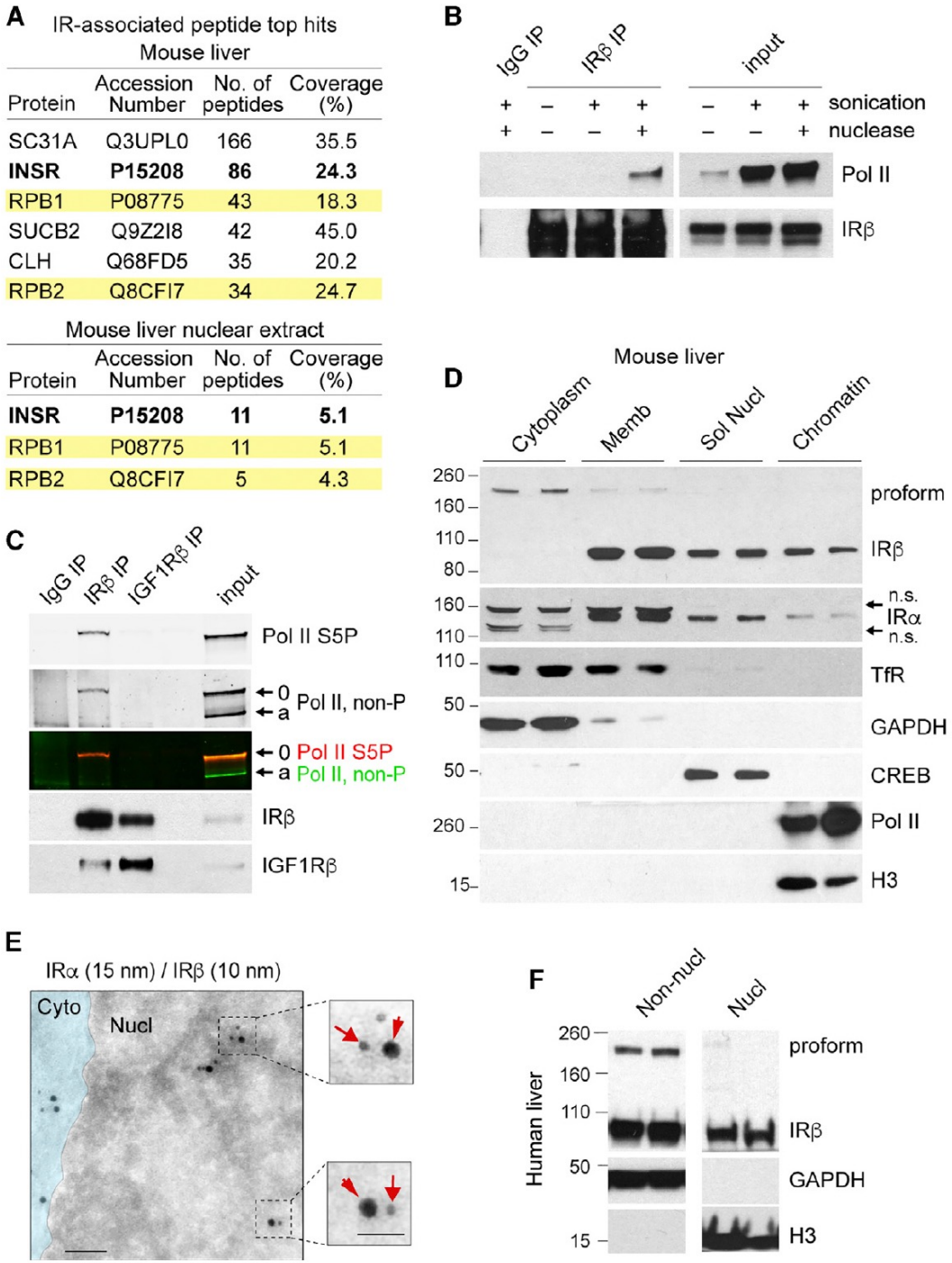
- Consider how to present the main finding / conclusion using the key data from the article
  - Do not have time to show everything– choose a storyline!
- Each data slide should present a single message
  - Do not include all panels for every figure
- With a 10 minute presentation, slide design in key!
  - Title = take-home message
  - Text is good, but only important details are included
  - The data are the most important part of the slide



WVU

What is a “figure”?

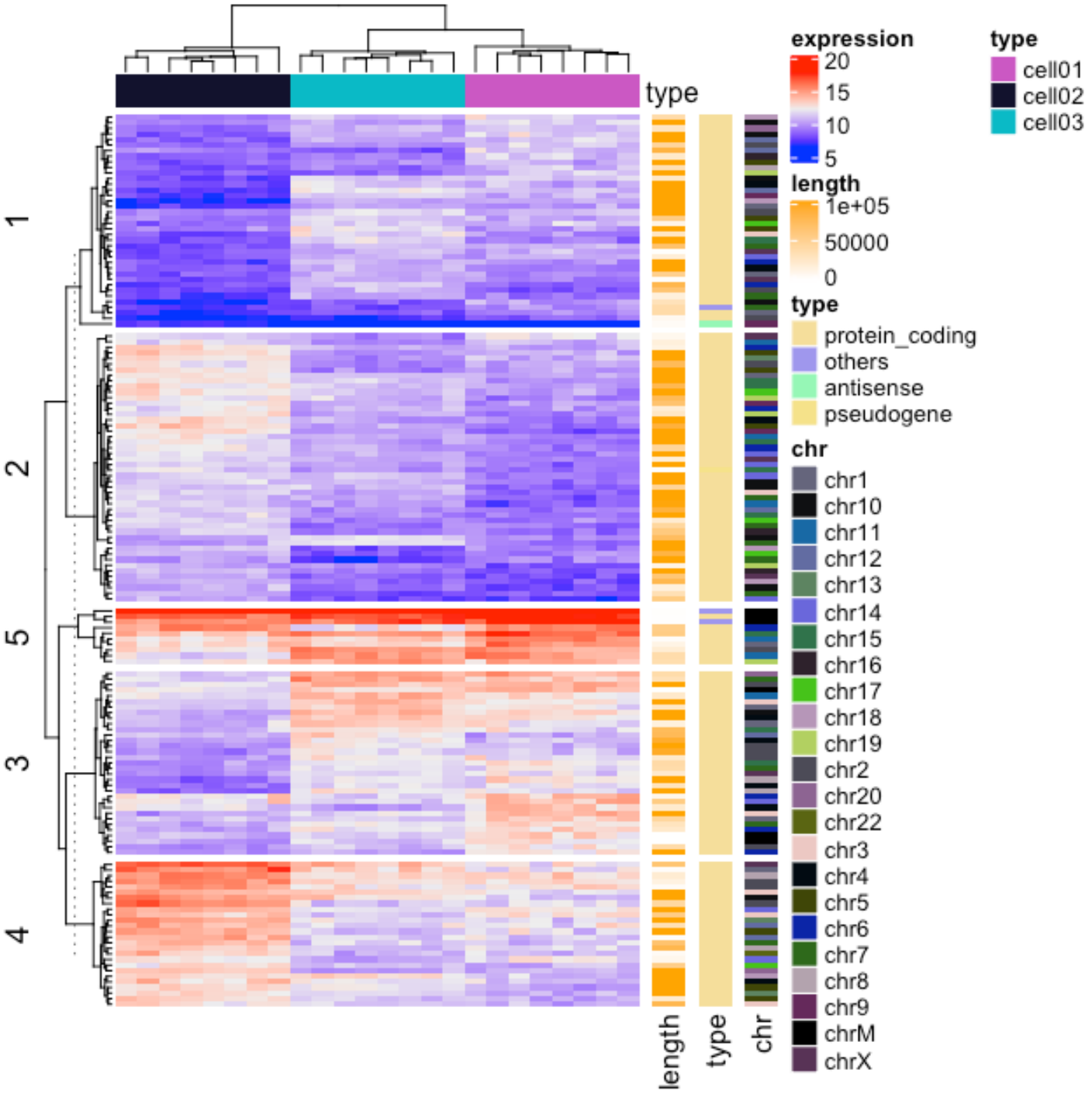
- Which figures best convey the take-home message of the paper
  - Which subpanel is most informative?
- Which figures are best for a visual presentation
- Omit subpanel labels and captions
- Remake axis labels when necessary!
- What figures are you able to understand / explain?



Figures can be overwhelming!

- What can you do with data like this?
  - Use animation to layer in the information
  - Use boxes / arrows to highlight the information as it is discussed

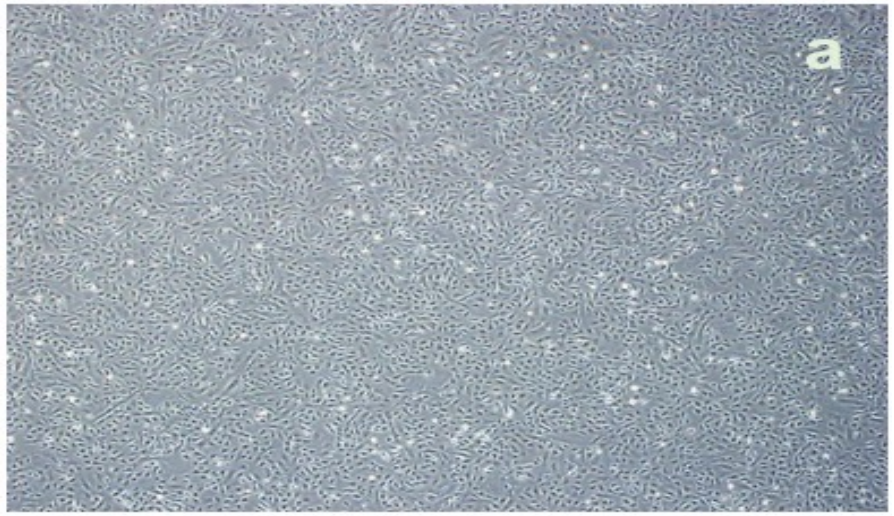
- Remember to explain all data you show!
  - You are allowed to omit extraneous data as long as it does not change the conclusion of the figure

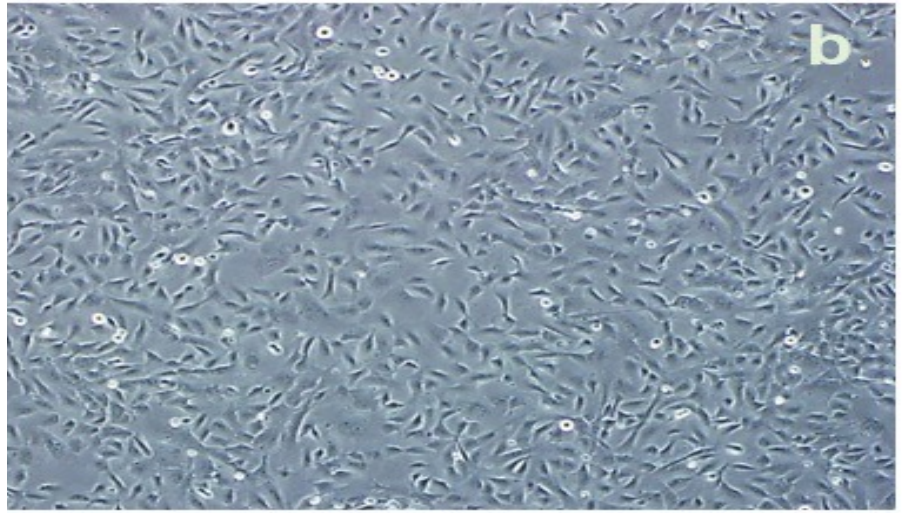


Not every figure projects well

- What can you do with a low contrast image?
  - Describe each image and the key features in your script
  - Use labels on the images that define what is shown in each

- Avoid stating “this is difficult to see” or “this is better in the paper”

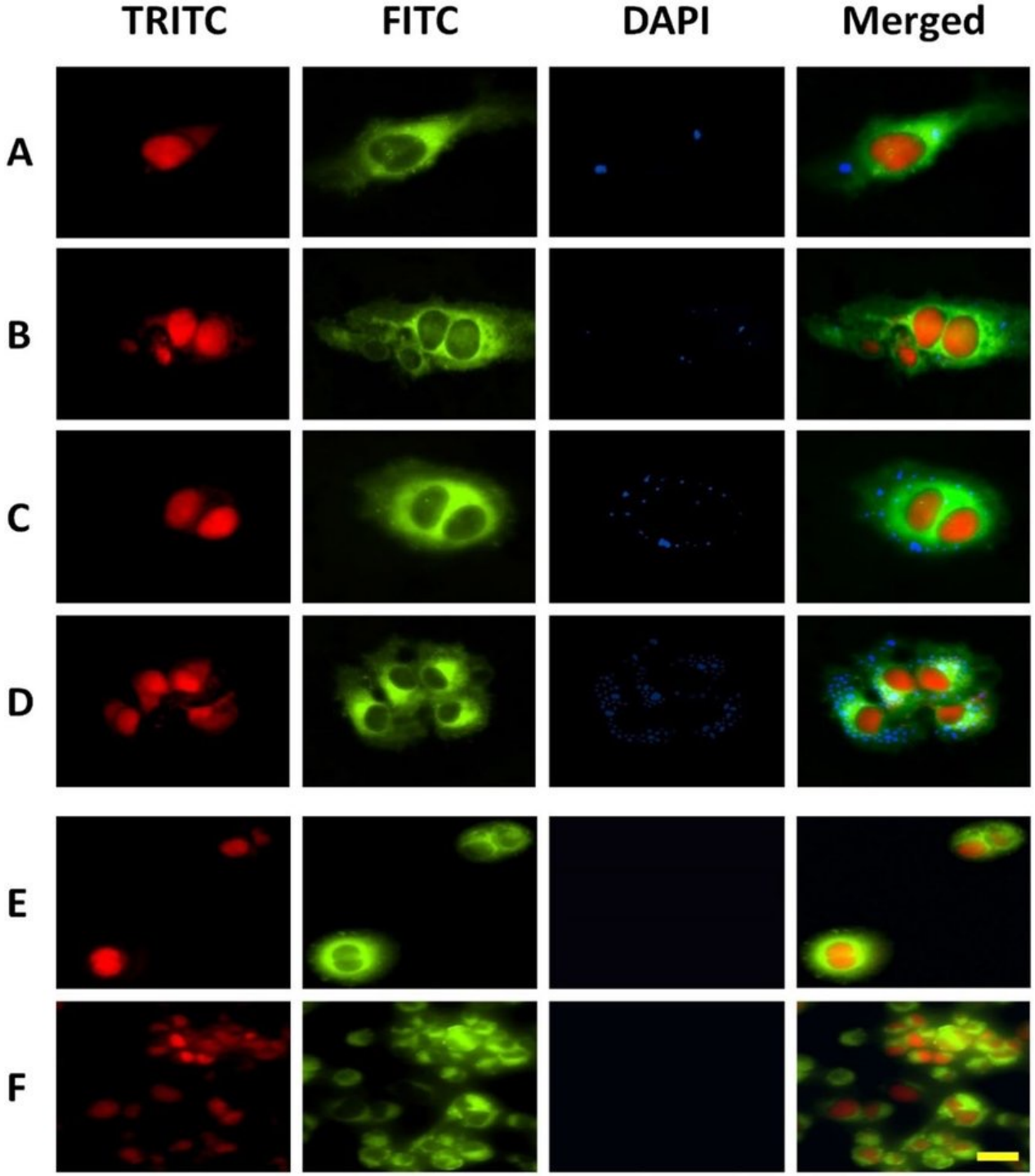




Figures may include layers of data

- When results for controls are shown, be sure to…
  - Describe how the control is a control
  - State what is expected and how is relates to the experimental results

- Conditions and results for individual variables should be addressed

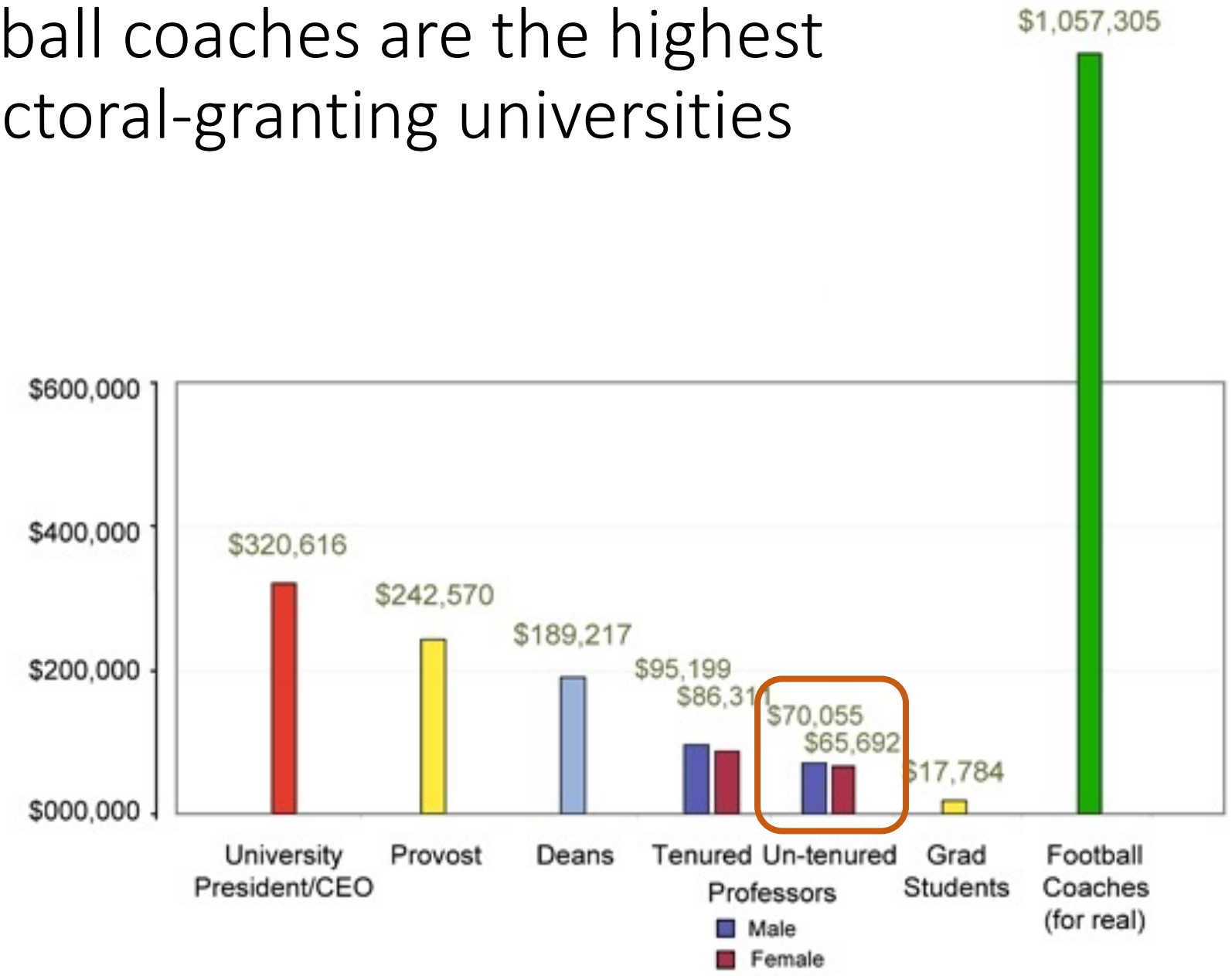


Think about how you are presenting the data

- Slides are for the audience, not for you!
  - Succinct bullets allow over-caffeinated, sleep deprived listeners to follow the key information presented
- Images should be visible to the geriatrics grading you and shown long enough for the listener to see the data (and for you to walk through the results)
- Brief statement on how the data were generated should be included to ensure the listener knows how to interpret what is shown
- At the end of each slide, your listener should know:
  - How was it done?
  - What does it mean?
  - Where does it lead?

EXAMPLE SLIDE: Football coaches are the highest paid employees at doctoral-granting universities

- Data represent expression of Y using method A
- Possibly something about the control(s), if applicable
- Important notes about the data and findings that are not already stated in the title
- Transition to next slide… (can also be done verbally)



PhD Comics

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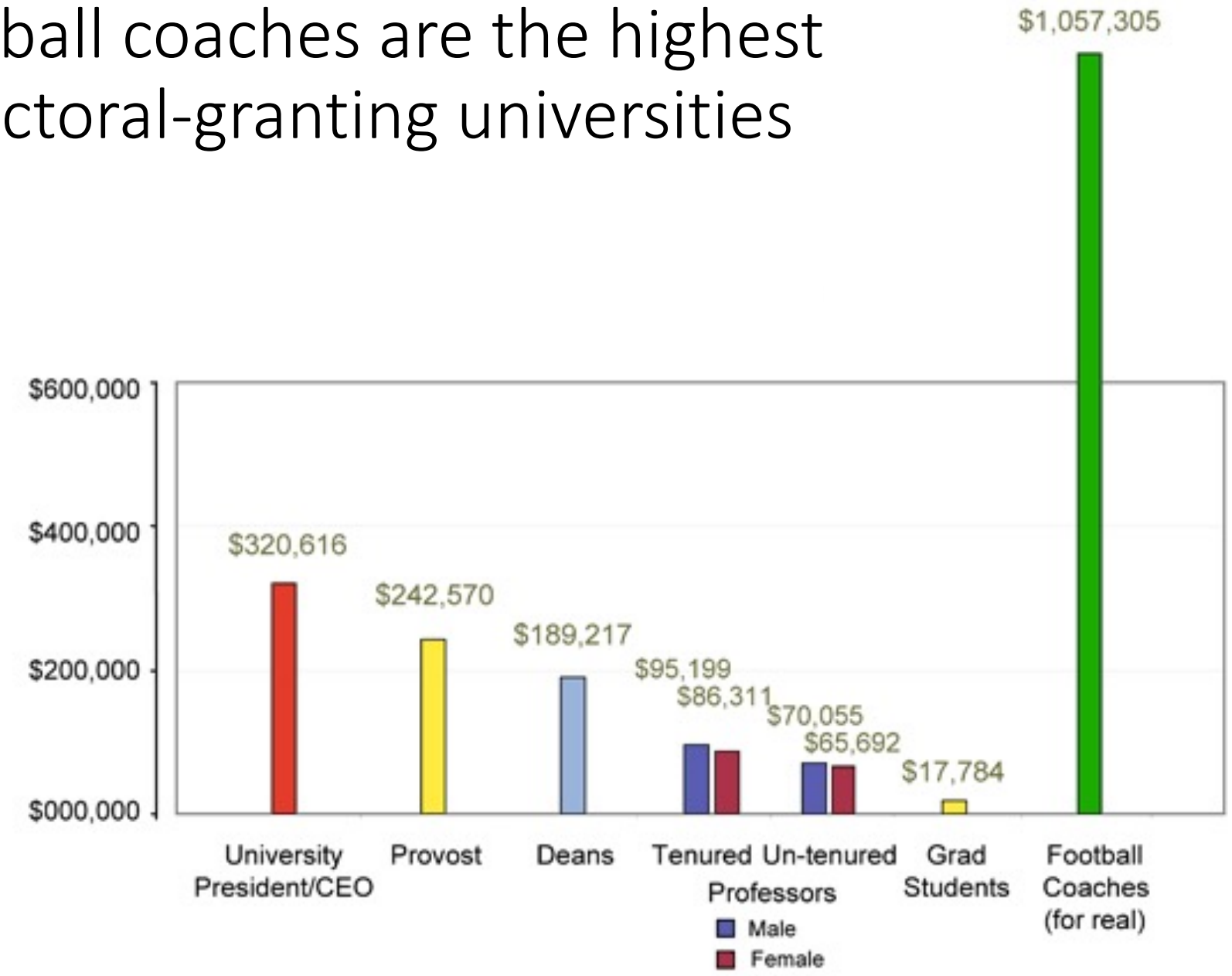

PhD Comics