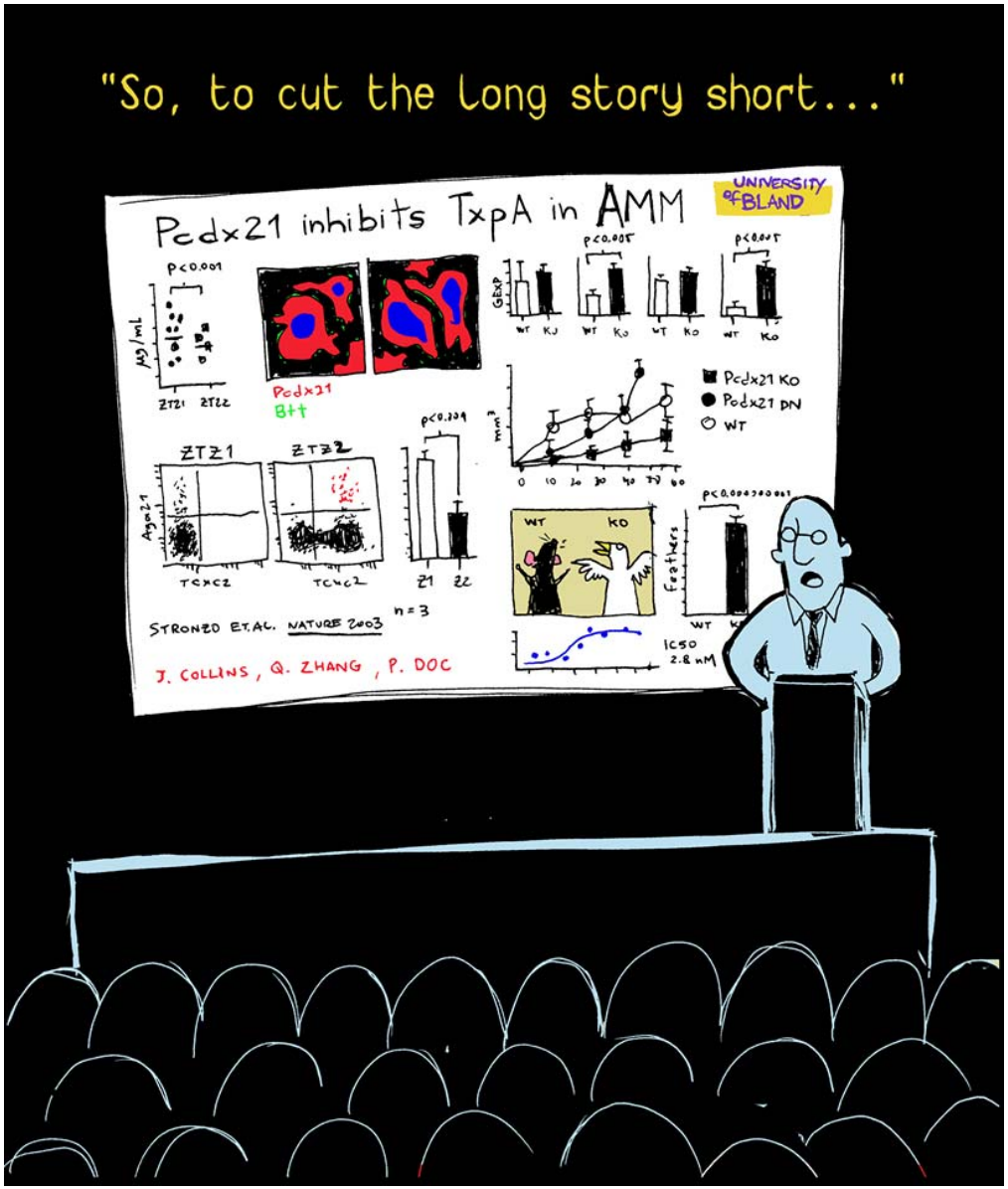
How to give a talk
and how to be an active audience member


"So, to cut the long story short..."
Pedx21 inhibits TxpA in AMM
UNIVERSITY OF BLAND
p<0.001
μg/mL
ZT21
ZT22
Pedx21
Btt
p<0.005
p<0.01
GENE
WT
KO
Pedx21 KO
Pedx21 pN
WT
mm³
ZTZ1
ZTZ2
Ag×21
TCRC2
p<0.001
Z1
Z2
n=3
WT
KO
p<0.000000001
Feathers
STRONZO ET AL. NATURE 2003
IC50
2.8 nM
J. COLLINS, Q. ZHANG, P. DOC

Overall organization
(How to construct your talk)

INTRODUCTION

YOUR CONTRIBUTION

These two sections are equally important. Spend as much time working on your introduction as on your own work.

CONCLUSION

General Tips

(Things to think about as you construct your talk)

1) Keep your audience in mind

- Their knowledge
- Their familiarity with your field of study, your lab and your project

As much as you can, treat your audience like precautious 5 year olds. They are extremely intelligent, but ignorant.

(What is the difference between intelligence and ignorance?)

2) Divide your talk into sub-sections.
Have organizational slides.

3) One slide per minute.
If you are taking too long on one particular slide, add an extra slide!

4) Animations are okay, but don't over-animate
(this is sometimes called Power Pointless!)

5) Use as few words, and as little text as possible in order to succinctly convey the information.

This takes practice and a lot of planning.

6) Deliver bite-size packs of information at a time.

This is a good place to use animations to help focus the audience's attention.

7) Walk through your slides

Guide your audience through each piece of relevant data. Every bar, cell … every relevant data point! Remember that your audience is IGNORANT (but intelligent).

8) Practice with grad students that are not in your lab.

*Audience:

- Did you get it?
- Do you understand the problem/question being addressed?
- Are you missing the relevant background information?
- Are you confused and/or distracted by something in the presentation
- When critiquing the presenter:
  - Try to convey <u>your ability to follow the reasoning behind the experiments</u>
  - Don’t try to give TOO MUCH ADVICE, you are not Napoleon!

  Your goal is to make the talk more intelligible!

How to Organize Each Section

INTRODUCTION: As important as your contribution.

You need to bring the audience up to speed. This is where you educate the precautious 5 year olds in the audience so that they can understand what is coming up in the section where you describe your contribution.

-What is known?
-What are the outstanding problems?
-What is the relevance to human health, our general understanding of biology etc.?
-Introduce **questions** that your work will go on to (or attempt to) address.

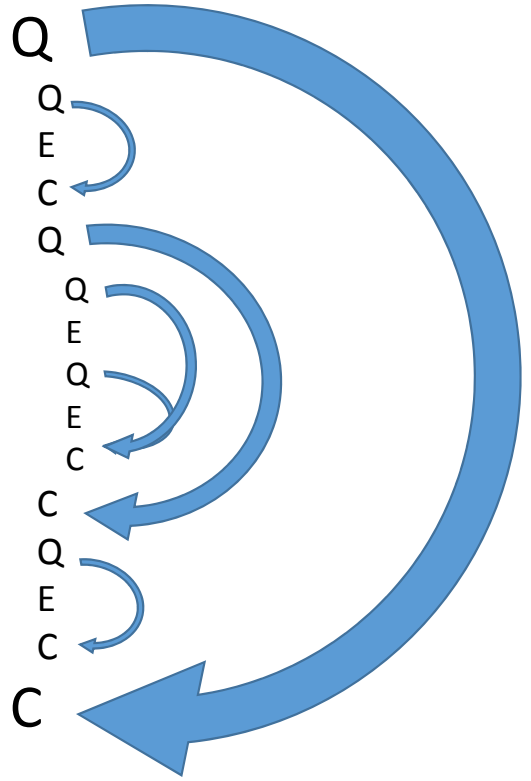
Be careful to bring up ALL relevant information, ideas, unorthodox techniques etc. Avoid giving IRELEVANT facts. You do not want to overload people with extraneous information.

As you work on the "YOUR CONTRIBUTION" section, you should always ask yourself: did I provide the relevant information in the INTRODUCTION so that they can make sense of what is going on?

YOUR CONTRIBUTION

Start off with big **question "Q"*** (ideally this flows naturally from your into)
Subdivide this question into smaller questions
How will you get an answer? (**experiment, "E"**)
What did you learn? (**conclusion, "C"**)

All questions need conclusions.
Sometimes many questions give rise to a single conclusion



* In a slide title, questions can be stated as conclusions
"Is Rtn5 required to for cell viability?" can be replaced with "Rtn5 is Required for Cell Viability"

YOUR CONTRIBUTION

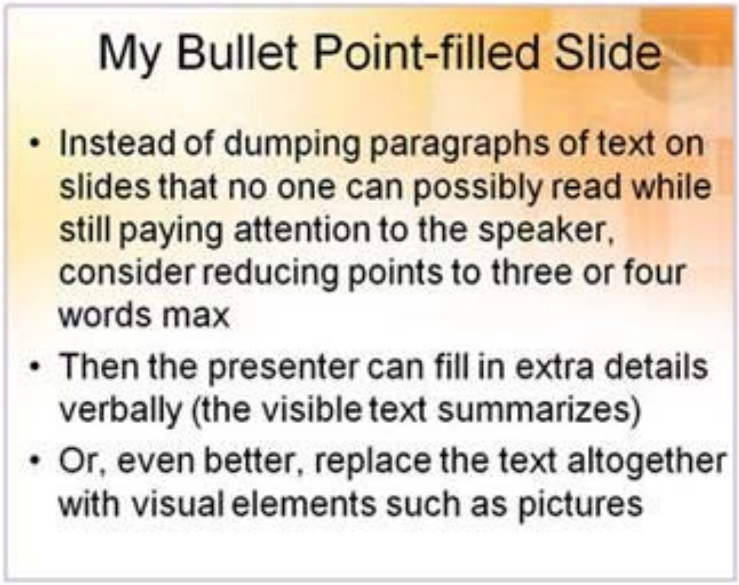
Present your work as a series of problems or questions.
Present each experiment as attempt to give an answer.

Dos:
- Show the ESSENTIAL data, including KEY controls
(but don't show everything!!!!! Think of your audience.)
- Remember, an experiment is changing one variable and presenting an outcome – emphasize the variable that you are changing
Example: CONTROL TREATMENT vs. EXPERIMENTAL TREATMENT
(e.g. WITH REVERSE TRANSCRIPTION vs. NO REVERSE TRANSCRIPTION)
- Use bullet points to help organize ideas and cut down on text
- Use large clear fonts (don't use comic sans)
- As much as possible, show schematics/cartoons instead of text
- Make the data intelligible without your input (titles, axis labels, panel labels)
- Show statistical significance if possible

YOUR CONTRIBUTION

Don’ts:
- Show extraneous data/experiments
- Fill the page with text or long sentences
- Present too much data on one slide
- Present distracting slides/graphics
- Show too much raw data in your talk (show summary tables/graphics when appropriate)
- Display info that is different from what you are saying (this distracts and confuses the audience)
- Use too many acronyms, abbreviations and jargon (explain all non-standard acronyms and abbreviations)

DON’T LOSE YOUR AUDIENCE!!



YOUR CONTRIBUTION - Data presentation (blots, microscopy, photos …)

- Show high resolution images
- For microscopy, try never to show exclusively color images!!!!!!!! (i.e. always use grey scale, with an additional color overlay being optional)
- Use the image as a tool to display your result

(i.e. if you can't see the result clearly, alter the image or choose another image)

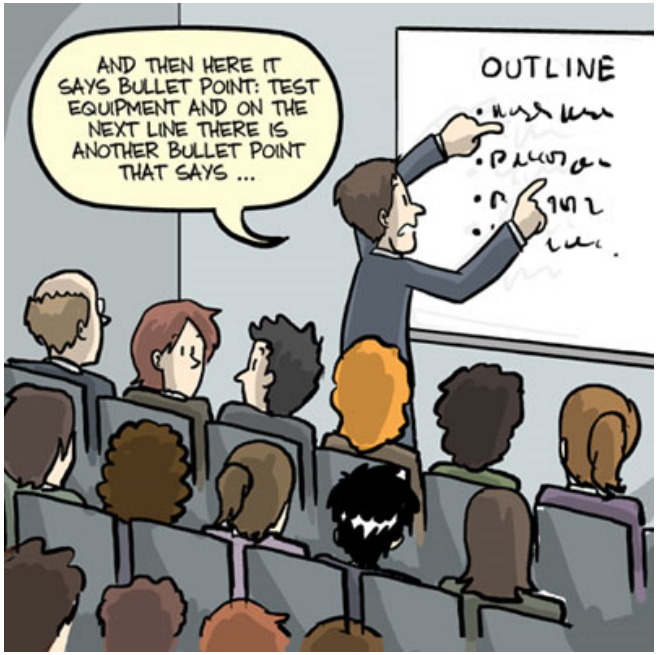
  - Make the image as big as possible
  - Crop the image to show what is essential
  - Make all your panels uniform
  - Increase the brightness/contrast – if imaging data is key to your talk, show up early and test your slides on the screen
  - Label your images/panels

- Have quantitative data in hand (you don't necessarily have to show it – but you may want to have it on an additional slide at the end of your talk)
- Do not alter the X/Y ratio of the image (do not show squashed or stretched images!!!!!!!)
- Include statistical tests where necessary

Order of priorities:

1) Convey information – this is what your data needs to do!
2) Beauty – if it looks nice, that's great, but this is not as important as point 1

Tips for speaking.



- Do not read off of your slides
- Reduce the number of filler words

(so, ah, uh, um, like, right, you know …)

- Make eye contact with the audience
- Be engaged
- Try to explain, not recite
- Avoid sounding scripted
- Stay succinct (cut to the chase!)
- When using words like “it”, “that”, “this”, etc. is it clear what you are referring to?
- Clearly point to each piece of data, do not whip your laser pointer around the slide!

Other miscellaneous tips

- If you want to make sure that you say something that you may forget, show it in a small text box in your slide

  Example: “We also confirmed this result by expressing [OTHER DOMINANT NEGATIVE PROTEIN].”

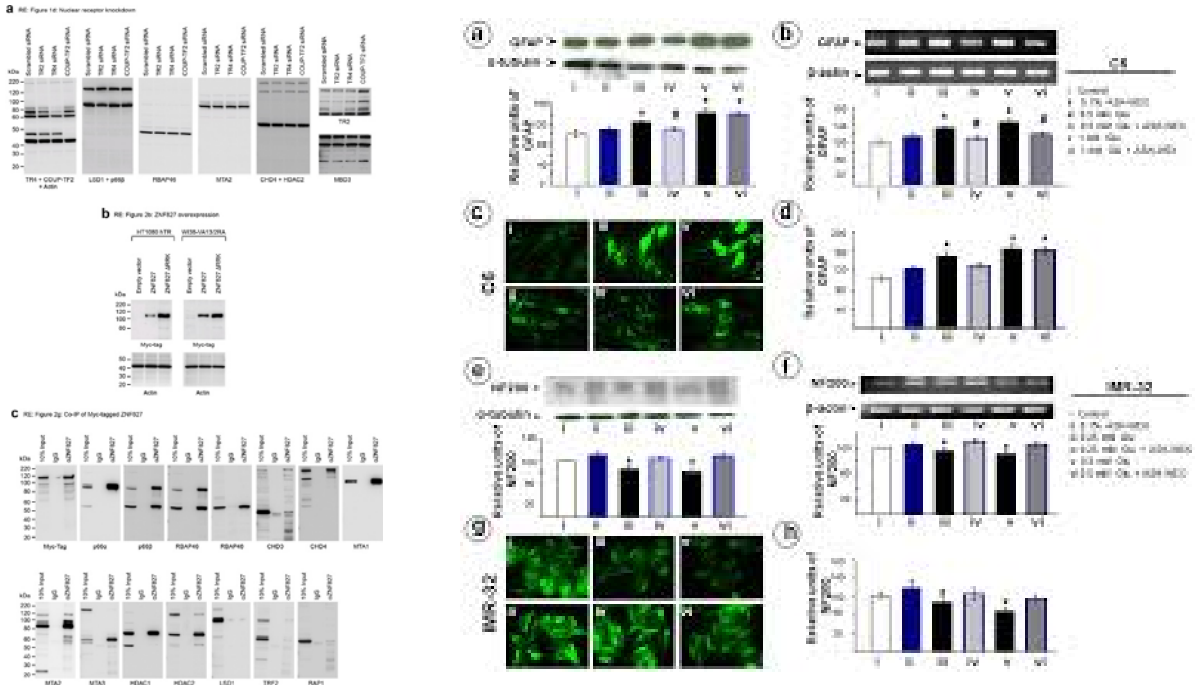
- If you show published data, include the citation somewhere in the slide

  Example: Cui et al., *PLoS Bio* 2012

- If you show other people’s data, acknowledge them in the slide (i.e. write their name at the bottom right corner)
- Don’t be afraid to steal images from other labs’ publications, but make sure to cite them in the slide
- State what organism/cell line you are using
- Emphasize key pieces of data with boxes or other graphics
- Use animations to display each **bite-size** piece of data at a time

Examples:

Look at my cool data!



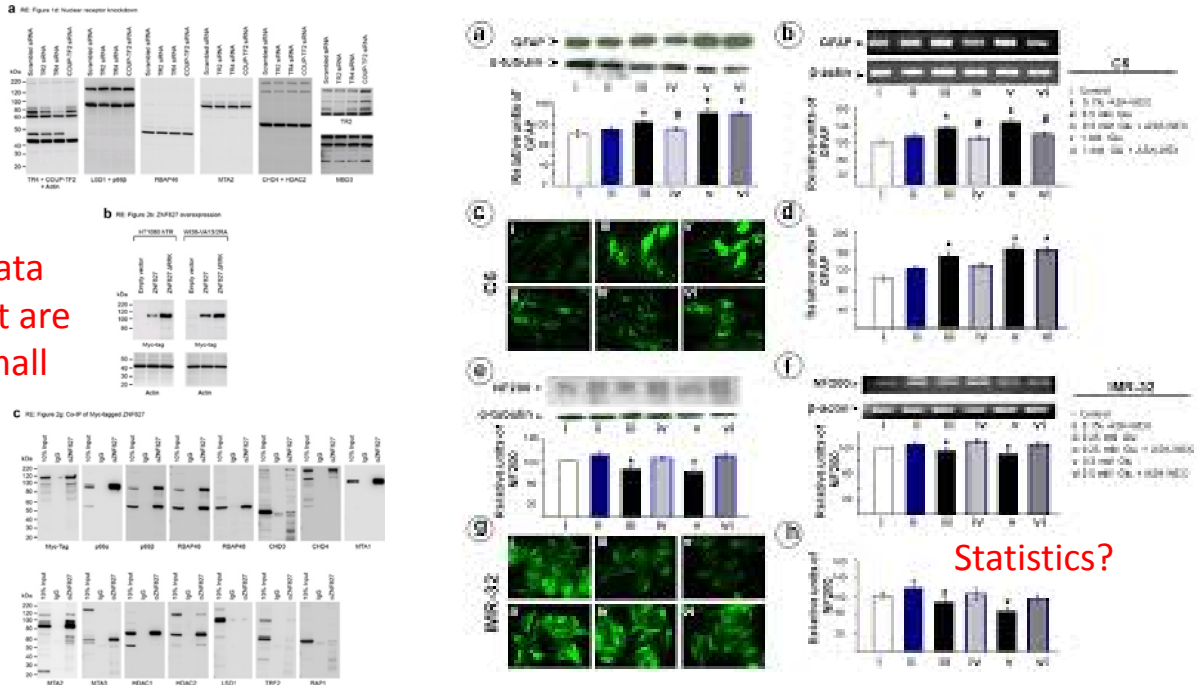
1) Show the ESSENTIAL data, including KEY controls
2) Present bite-size data

Look at my cool data!

Too much data

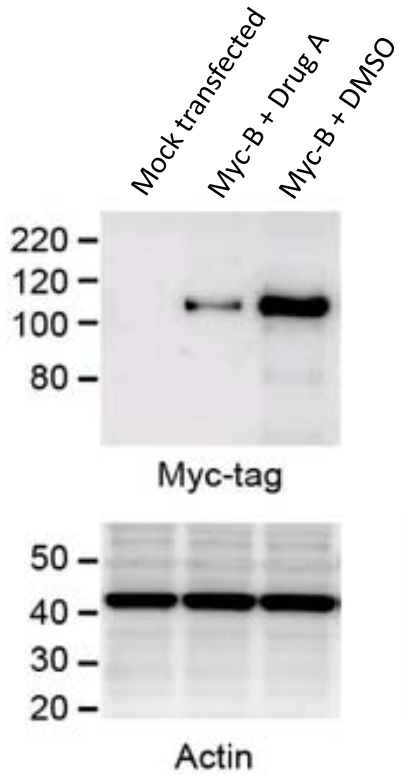
The title does not stand out and is not informative

The data and text are too small



Statistics?

Drug A reduces expression of protein B



Speaker:

We wondered whether drug A affected protein B. So, we took cells and we transfected them. We then ran the lysate on a gel and blotted it for myc. The drug affected protein B [points to lane 2 of the top gel]. If we then looked at actin levels [points to the second blot], untransfected cells had as much protein as cells treated with drug A or with cells treated with control medium. So, um, from this experiment we concluded that Drug A affected the levels of protein B, just like our hypothesis stated.

"Running" a gel is slang, not the worst offence, but should be kept to a minimum.

What cell type?

With what?

How was the protein affected?

Control? Is that lane 1 or 3???

Get rid of this

What is labeled with myc?

Speaker:

We wondered whether drug A affected protein B. So, we took cells and we transfected them. We then ran the lysate on a gel and blotted it for myc. The drug affected protein B [points to lane 2 of the top gel]. If we then looked at actin levels [points to the second blot], untransfected cells had as much protein as cells treated with drug A or with cells treated with control medium. So, um, from this experiment we concluded that Drug A affected the levels of protein B, just like our hypothesis stated.

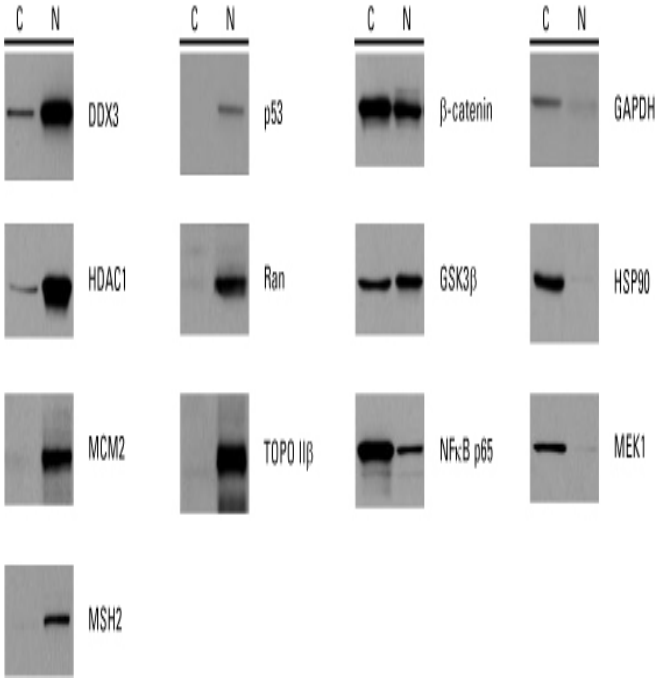
Too wordy! This is just a loading control

Get rid of this

Unnecessary

To determine whether the expression of protein B was affected by drug A, we transfect a myc-tagged version of this protein in COS-7 cells that were treated with drug [points to lane 2] or vehicle [points to lane 3]. As you can see, Drug A inhibits production of myc-tagged B. No signal was seen in untransfected cells [points to lane 1]. Actin was used a s a loading control [points to the second blot].

Cellular fractionation

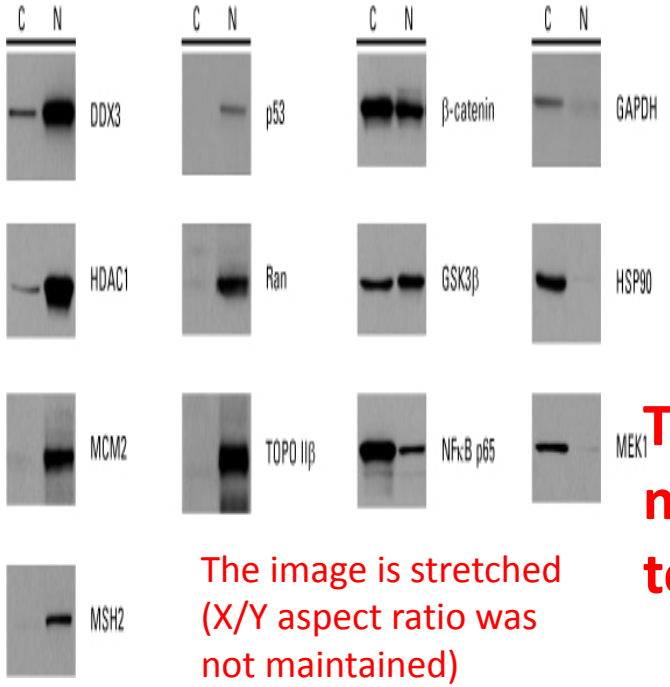


- Many different proteins are reproducibly localized to either the cytoplasm and nucleus (n = 3)
- Some proteins are localized to both the cytoplasm and the nucleus (for example GSK3b and b-catenin)
- I have a lot of data
- Now that we have mastered the art of cellular fractionation, I can go on and test whether my protein of interest is localized in the nucleus or to some other sub-cellular region
- The new assay will allow me to collect even more data that I can stuff into my future publications

1) Don’t fill the page with text or long sentences
2) Do not show squashed or stretched images

Cellular fractionation

Uninformative title. The font is not consistent with the rest of the talk and hard to read.



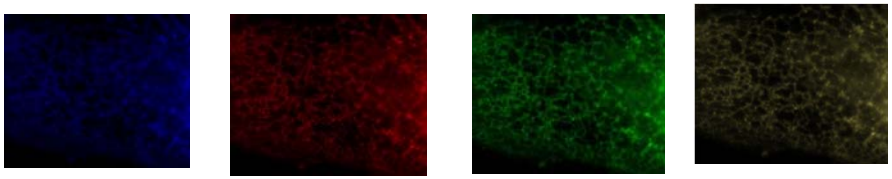
The image is stretched (X/Y aspect ratio was not maintained)

- Many different proteins are reproducibly localized to either the cytoplasm and nucleus (n = 3)
- Some proteins are localized to both the cytoplasm and the nucleus (for example GSK3b and b-catenin)
- I have a lot of data
- Now that we have mastered the art of cellular fractionation, I can go on and test whether my protein of interest is localized in the nucleus or to some other sub-cellular region
- The new assay will allow me to collect even more data that I can stuff into my future publications

Too much text

Irrelevant information

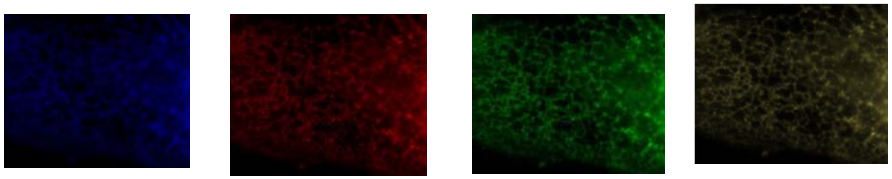
Rtn5 localizes to the ER



1) The data does not convey the information.

Rtn5 localizes to the ER

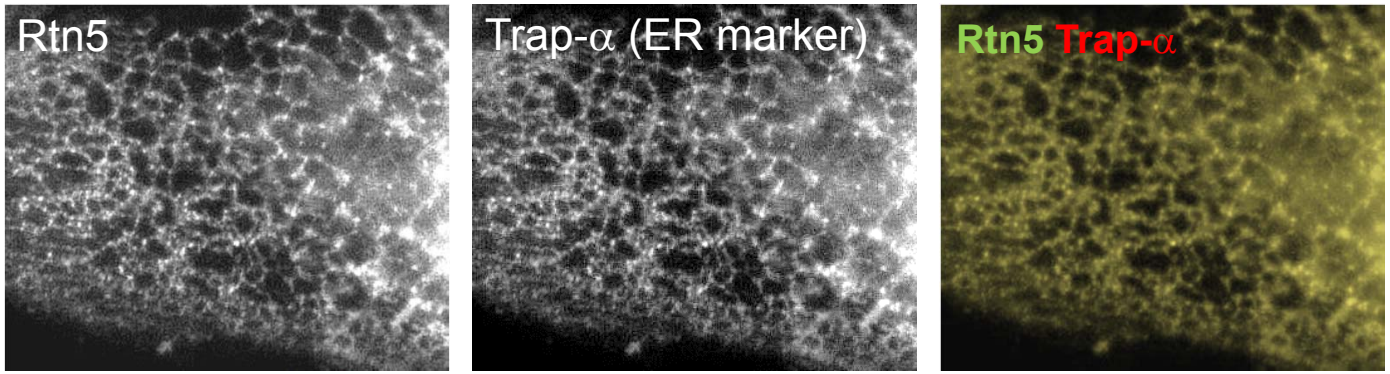
Was “ER” explained?



Images are
-too dark and in color
-too small,
-unlabeled,
-unevenly sized,
-not centered,
-unevenly spaced

Does the data convey the necessary information?

Rtn5 Localizes to the Endoplasmic Reticulum



Last part:

CONCLUSION

- Short (NOT TOO WORDY!)
- Summarizes the most salient points.
  What is the take home message?
- Should refer back to your introduction
  How does your work add to our knowledge?
  Relevance to human health, everyday life …

Future Directions (can come before or after the Conclusion)

-Again, use as few words as possible
-Only state major questions/experiments. The audience does not want to hear a long litany of things to do.

(As a thinking exercise, but not necessarily stated in your talk, you should ask whether these experiments will help address major question raised in the intro or by your work.)

Thankyou slide:

This can come at the beginning or end of the talk.

- Lab mates
- Collaborators
- Others who have helped you
- Funding agencies

This is the one slide that you don’t have to worry about being too wordy or crammed.