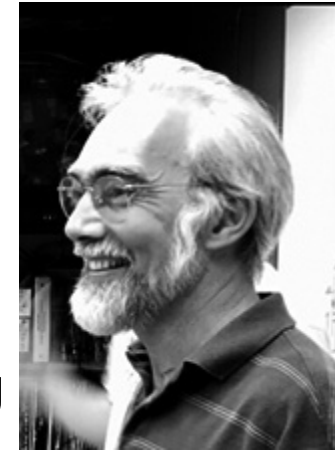


# Presentation 101 for Graduate Students

J. Paul Robinson

SVM Professor of Cytomics  
Department of Basic Medical Sciences  
& Weldon School of Biomedical Engineering  
Purdue University



A set of suggestions and examples for creating good quality presentations.  
What to do and what not to do in your seminar!!

This presentation is available for download from  
<http://www.cyto.purdue.edu/education>

Presented to grad students each year since 2000

## **Note for those reading this presentation from this online version**

It is not ideal to review a set of slides without having heard the presentation. However, I have put them on line to assist new students when they have to give seminars or conference talks. My suggestions are mainly for beginners, but some things carry all the way to experienced speakers. My goal was to increase the confidence of students by giving them a solid basis to use when preparing their slides. To understand each slide, I suggest you download the PPT file and play it on your computer. I have added explanations to the slides that give my key pointers.

**So:** These are in the boxes that look like this at the bottom of most slides

*J. Paul Robinson, Purdue University*

# Goals of this Presentation

- To demonstrate good principles for public presentations using PowerPoint™ and computer projectors
- To show how slides might be better used
- To demonstrate good and bad slides, distracting habits, some suggestions to assist your presentation
- To suggest a baseline for a good presentation

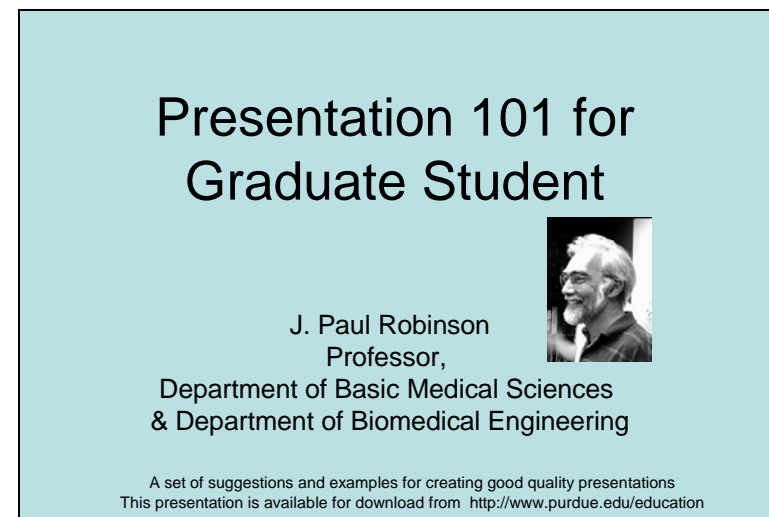
# The Three Essential Features of a Good Presentation

- Tell people what you are going to tell them → Introduction & outline
- Tell them the material → Your core materials in necessary detail
- Tell them what you told them → Summarize your findings and close your presentation

# Opening your presentation

1. You should be early (10 min) for your presentation.
2. You should have checked in with the person who will chair the session
3. You should have already checked the projector and computer well before your talk
4. You should be ready to begin when invited
5. Your first slide should be on the screen before you begin
6. It should have your presentation title on it and information about you

(Example opening slide from this presentation)



Have the projector and computer set up with the opening slide well before the presentation is due to start

# Your Opening Statement

- **If you are an Invited Speaker:**
  - *“Thank you very much for that generous introduction. I would like to thank the organizers for inviting me to give this presentation. It is an honor to be here at Purdue. Today I would like to present some ideas on the invention of the wheel....”*
- **If you are a Seminar Speaker (more informal):**
  - *“Thank you very much Professor X. I am very glad to able to give this seminar. Today I would like to present some ideas on the invention of the wheel.”*

Your opening statement should be strong, and well prepared. It should be short and it can also be an expression of thanks to your host if appropriate.

# Your Closing Statement

- Do**
- “In my last slide I would like to acknowledge the participation of my colleagues Jim, Jane, Alphonso, and Dr. Jones. I would also like to acknowledge the support of the National Science Foundation for funding this study.” (*pause here very briefly*) ... “Thank you very much for your attention.” (**Don’t say anything else!!!!**)

- Don’t**
- Don’t just stop!
  - Don’t say “*that’s it*” .... “*that’s the end*” .....: “*I’m finished*”
  - NEVER offer to answer questions if there is a chairperson - it is the role of the chairperson, not you, to ask for questions!!!! (**Don’t invite questions - it’s rude!!!!**)

**So:** Make the audience feel comfortable about the end of your presentation by telling them when it is finished.

# Imaging, Flow Cytometry, and Functional Cytomics

Applications of  
current cell analysis techniques

J. Paul Robinson, Ph.D., & Bartek Rajwa, Ph.D.

Purdue University Cytometry Laboratories

**So:** Example Opening Slide – Has complex background  
– OK for one slide, but don't use it for all the rest!



# Imaging, Flow Cytometry, and Functional Cytomics:

Applications of  
current cell analysis techniques

J. Paul Robinson, PhD

Purdue University Cytometry Laboratories

**So:** Example Opening Slide – Has plain background – not so exciting, but very effective when the goal is to talk science!! Note that the copyright statement at the bottom in black is now virtually unreadable! (so don't use black on blue!!)

# Your personal habits

- **Standing:** Face your audience, but if you are very nervous, look only at people in the middle or back rows
- **Pacing:** Sometimes pacing helps when you are nervous – it can also help to keep the audience’s attention – but it can also be distracting – if you pace, pace slowly and deliberately
- **Speech:** Speak slowly, clearly, & deliberately
  - don’t say “Ummm”...or “Ah....” ....between every sentence
  - don’t say “You know....” when you pause
- **Fidgeting:** Don’t play with the toys (like keys) or put your hands in your pockets – hold the lectern if you have to
- **Humor:** Use very sparingly, it can be an ice-breaker but it is very hard to do – my suggestion is to avoid it

# Key Material Items to consider

- Use of the laser pointer
- The slide background
- Use of color
- Use of animation tools
- Use of diagrams or flow charts
- Amount of material per slide
- Number of slides in the presentation
- Your first and last slides

# Using a pointer

- Use the pointer to add emphasis and assist the audience follow your ideas

- |   |
|---|
| <p><b>Do:</b></p> <ul style="list-style-type: none"><li>- Use sparingly</li><li>- Hold on only for a second at a time</li><li>- Hold it steady</li></ul> <p><b>Don't:</b></p> <ul style="list-style-type: none"><li>- Hold the pointer on!!</li><li>- Spray the audience...ouch!</li><li>- Flash the pointer all over the slide</li></ul> |
|---|

**So In Emergency:** If the pointer dies: don't panic. A good chairperson will observe and deal with it. If not, find a stick, pen, or some long object and use that to point to the screen. Don't let this put you off your presentation.

# Pointer use example

- There are 4 main points:
  - The length of time you leave the pointer on
  - How steady your hand is
  - Are you “firing” at the audience?
  - Are you distracting your audience rather than focusing them?

**Example:** When you mention the first point – put the laser at the “-”. Discuss this point, then move to the next point. Mostly pointers are useful when dealing with figures and images. It is unnecessary to point to each line of text, but for learners, it is a good way to keep yourself on track.

# Pointer hints for nervous people (that's most people actually!)



- Hold the lectern when you talk – it stops your hands doing funny things. When you become more confident, you can walk away from the lectern.
- Hold the laser pointer on the edge of the lectern when you point it – then your quivering fingers won't make the pointer bounce everywhere!!

# Using Backgrounds

- Backgrounds are fun, but they can be distracting
- Sometimes you cannot read the text
- Sometimes they are more interesting than the data
- They significantly increase the size of the file
- Sometimes they just look ridiculous
- It is a well known fact that the most important factor in reading text is .....**contrast**
- The best contrast is.....Black and **White**

**So:** Sometimes boring old black and white slides are easier to see!!

# Backgrounds

- Be careful when using backgrounds available from templates
- A more conservative approach is safer
- You want the audience to focus on your data, not your background
- If you must, use a simple color like blue
- Some examples follow in the next 5 slides – the last 2 are not acceptable

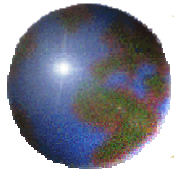
**Lesson:** Pretty backgrounds are fun but foolish! It might seem like a good idea at the time, but your audience is thinking ...”*Oh no, not another symphony of colors....*”



# What Resources are Required?

- Start with educational objectives and goals
- Define needs based only on the educational objectives
- Initially identify minimal hardware requirements, beg or borrow if necessary
- Integrate staff into lab with scientific staff to increase participation

**So:** Very plain example slide. No frills.



## *What Resources are Required?*

- Start with educational objectives and goals
- Define needs based only on the educational objectives
- Initially identify minimal hardware requirements, beg or borrow if necessary
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# What Resources are Required?

- Start with educational objectives and goals
- Define needs based only on the educational objectives
- Initially identify minimal hardware requirements, beg or borrow if necessary
- Integrate staff into lab with scientific staff to increase participation

**So:** Good example slide (side/top bar work OK)  
Colors are fine, note slide number on left.

# What Resources are Required?

- Start with educational objectives and goals
- Define needs based only on the educational objectives
- Initially identify minimal hardware requirements, beg or borrow if necessary
- Integrate staff into lab with scientific staff to increase participation

**So:** BAD example slide - nasty background – its very distracting and much more interesting than the text!!

# What Resources are Required?

- Start with educational objectives and goals
- Define needs based only on the educational objectives
- Initially identify minimal hardware requirements, beg or borrow if necessary
- Integrate staff into lab with scientific staff to increase participation

21  
So: VERY BAD example slide – drop the fireworks!

# Use of Color

- Color shows **emphasis**....BUT..
- It should be used sparingly
- Certain colors cannot be used together

– For example:

– Red text cannot be used on blue backgrounds or vice versa

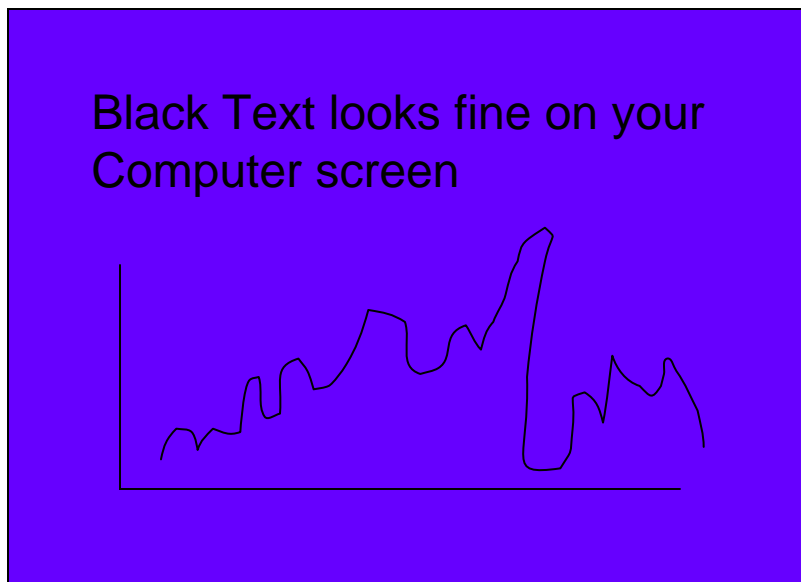
– Blue text cannot be used on red backgrounds or vice versa

- Colors that should virtually never be used are:
  - Purple, pink and bright green
- Yellow can be used on black but never on white background

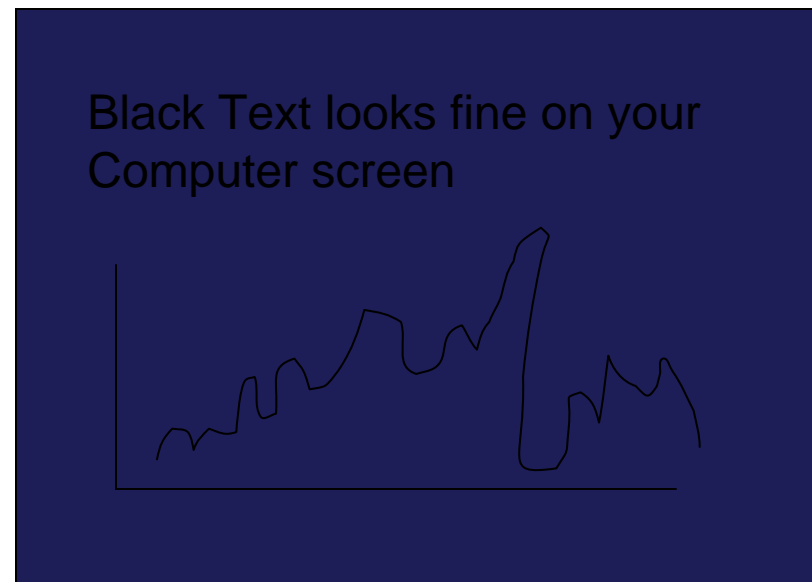
**So:** NEVER use red and blue together...it might look OK on your computer screen, but it's horrible on the projector screen!!

# The difference between the computer screen and the projector screen

- Colors that look great on your computer screen may be HORRIBLE on the projector screen.
- For example BLUE background CANNOT have black text.



Your computer SCREEN looks like this....It's just OK.



But this is what happens when it is projected onto the screen....

**So:** NEVER use black text on a blue background...it might look OK on your computer screen, but it's unreadable on the projector screen!!

# Advantages

---

## Standard Assay

- Uses whole blood
- Cheaper than microdrop

## Gel Microdrop

- Rare populations
- Short incubation
- Sort and recover live cells

**So:** EXAMPLE: bad color, way too much animation – it's just a bad slide



# Advantages

---

## Standard Assay

- Uses whole blood
- Cheaper than microdrop

## Gel Microdrop

- Rare populations
- Short incubation
- Sort and recover live cells

**So:** OK – it might look boring, but this is a very basic slide and really does not need any enhancement. Audience is focusing on just the text.

# Advantages

## Standard Assay

- Uses whole blood
- Cheaper than microdrop

## Gel Microdrop

- Rare populations
- Short incubation
- Sort and recover live cells

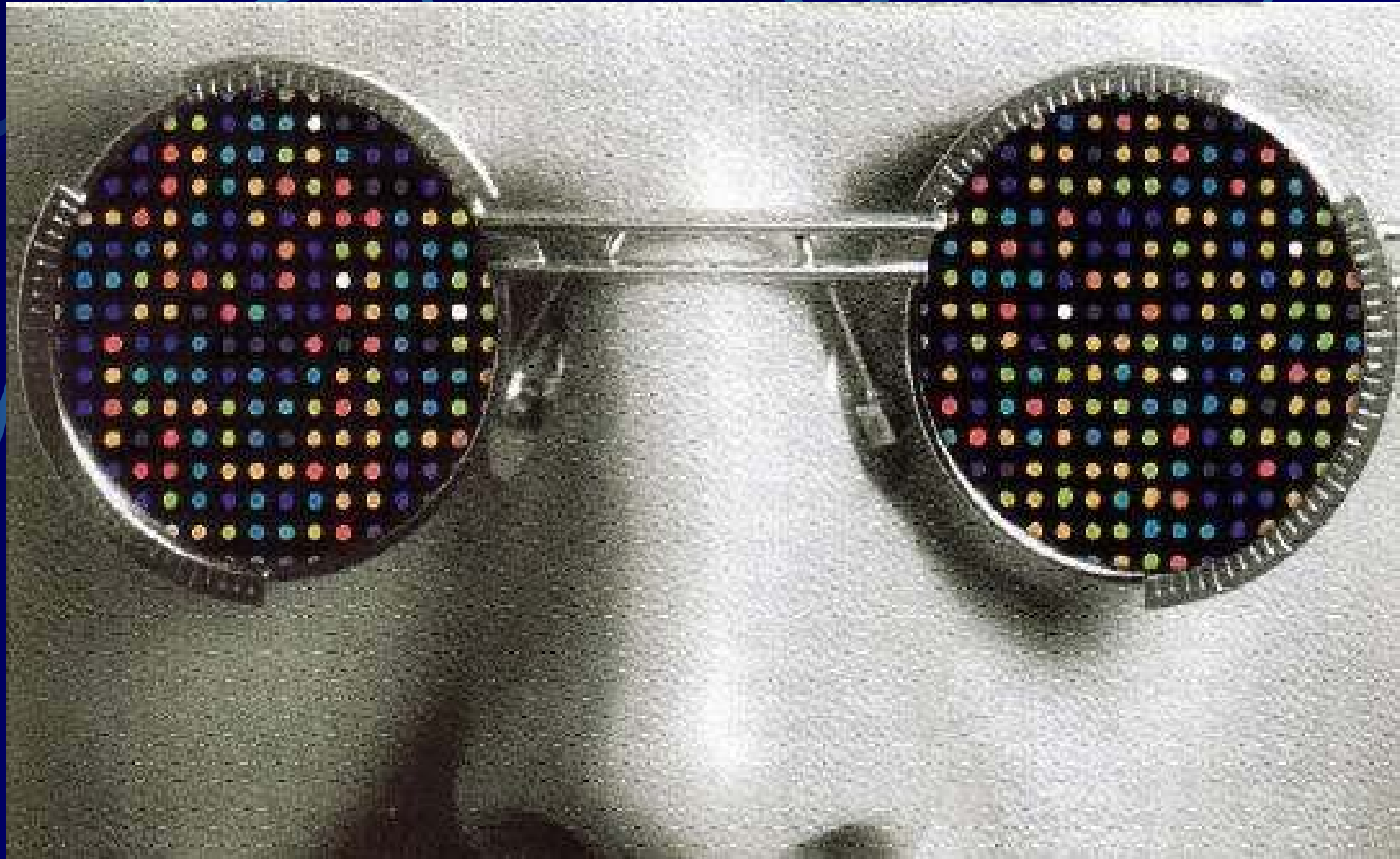
**So:** If you want to make it a little more attractive...this works well.

# Animation

- How much animation is right?
- Make sure you test it carefully!
- A small amount of animation is good
- Too much is “ditzy” and often annoys your audience

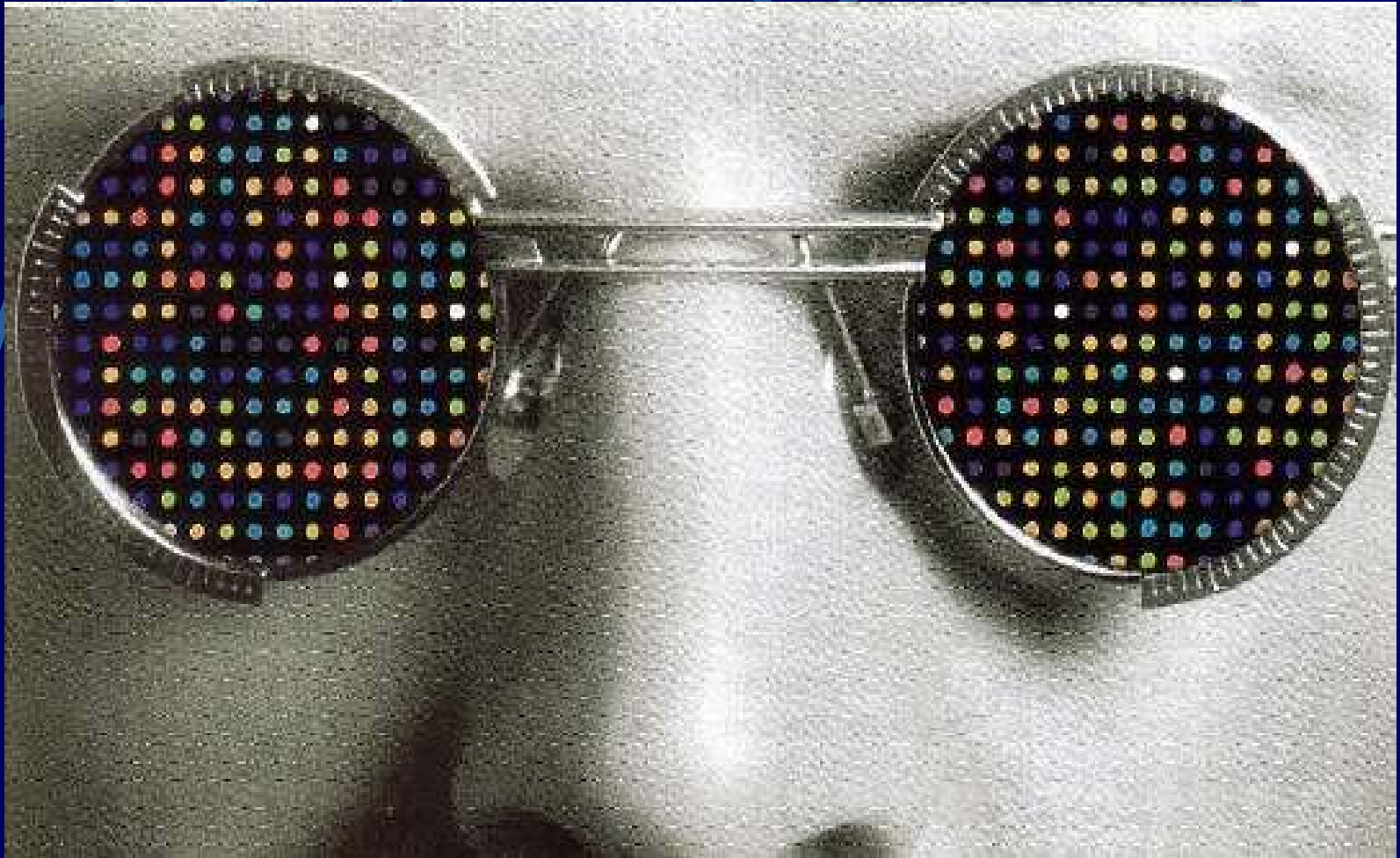
**So:** “Ditzy” animations are really off-putting to the audience. Good animations, such as how a reaction takes place, are fine.

# And for Imaging Technologies?



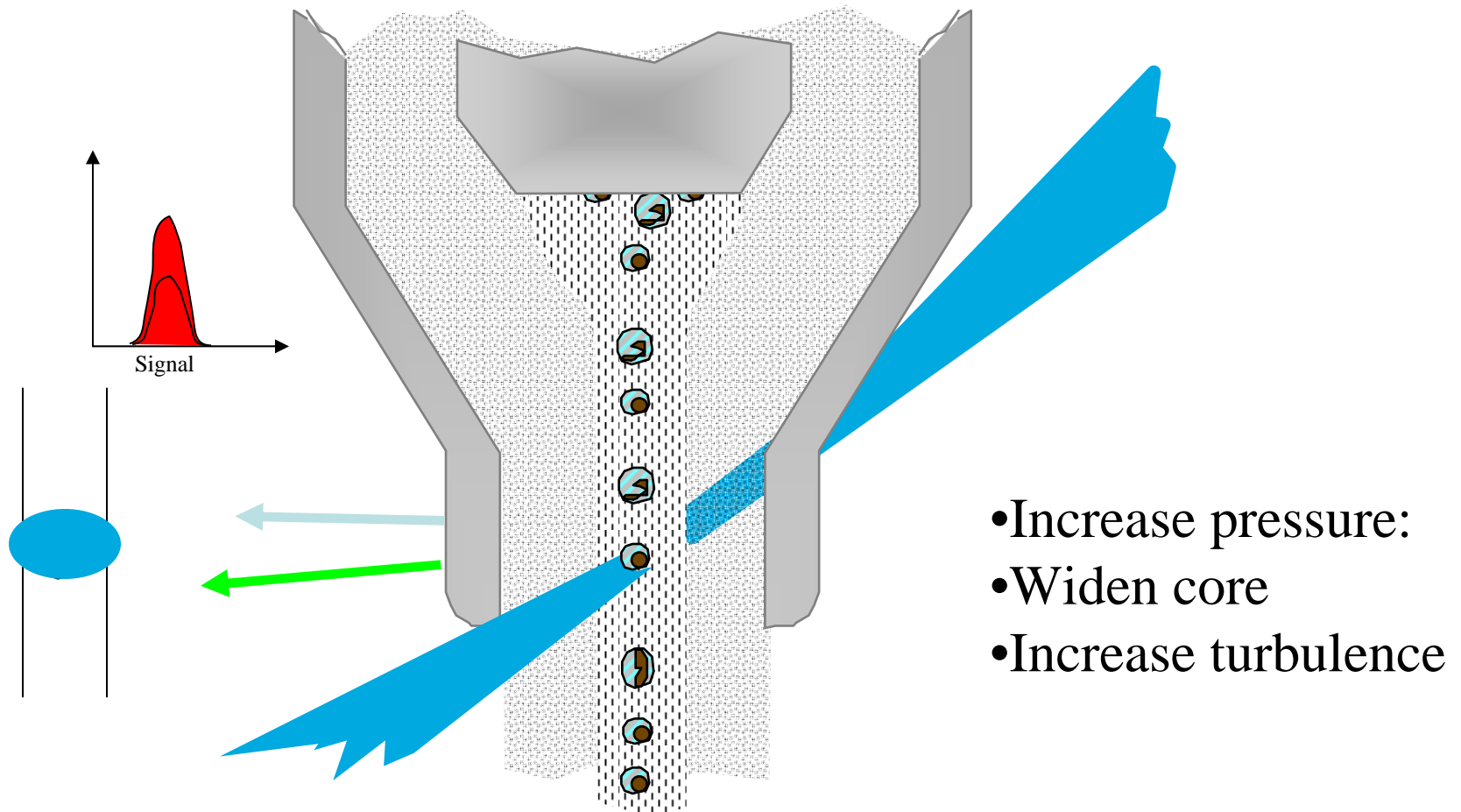
So: Example - simple animation – it works even though the background is a bit much

# And for Imaging Technologies?



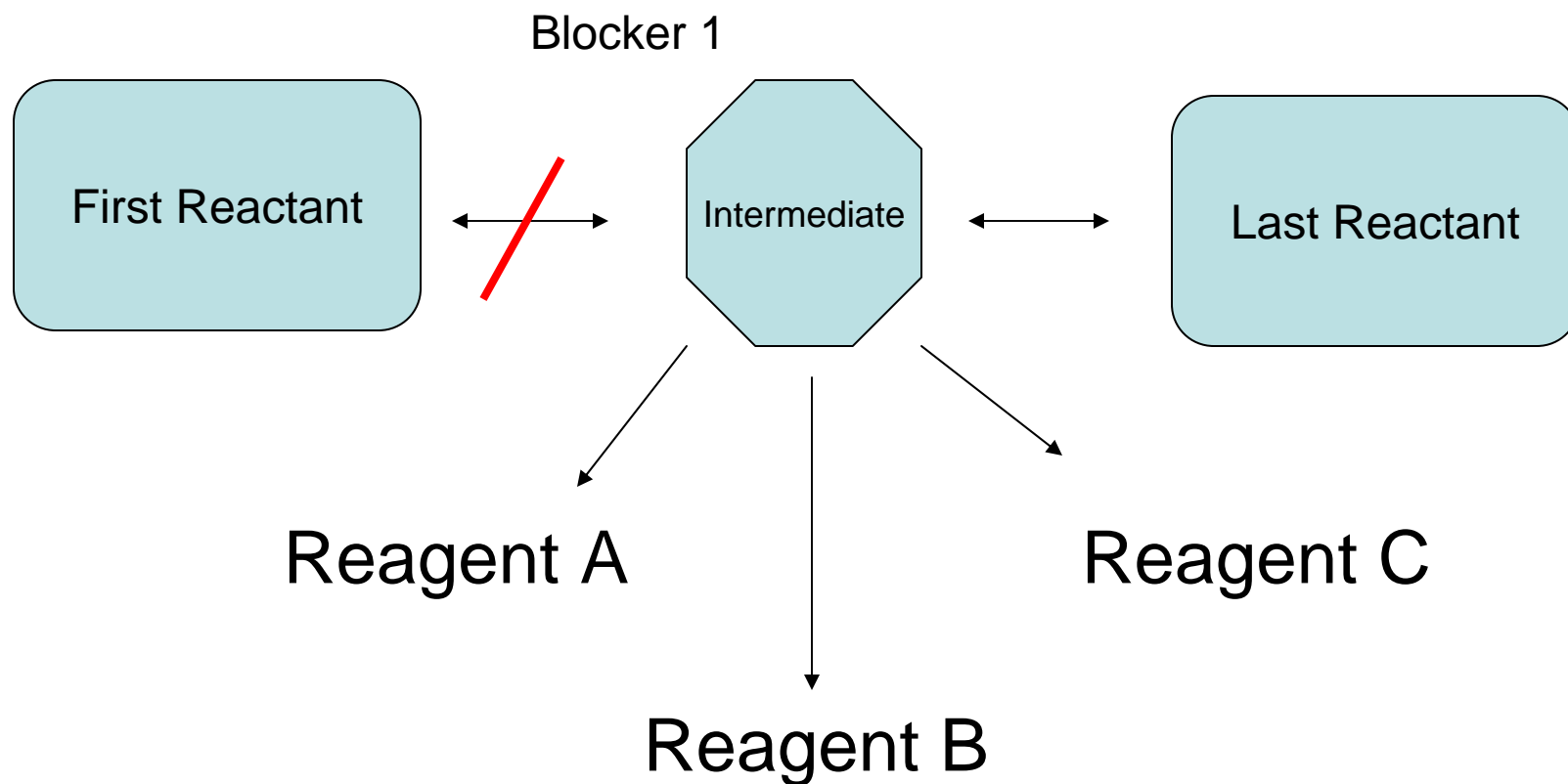
So: Example – gratuitous animation – plain annoying!!

# Hydrodynamically focused fluidics

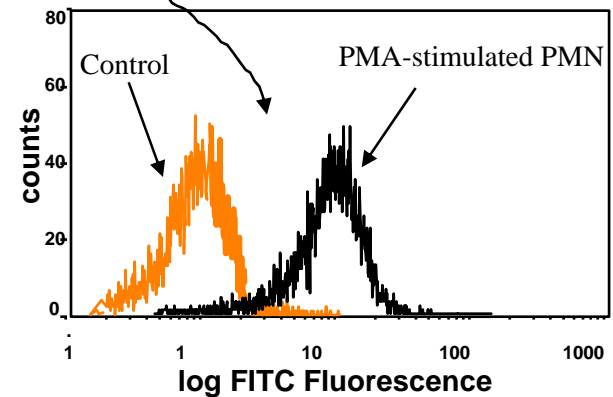
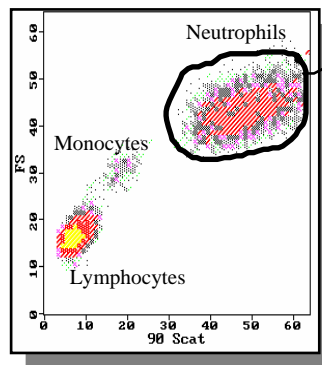
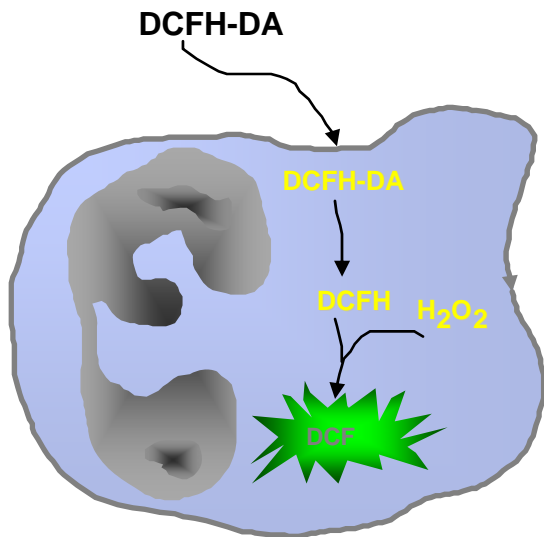
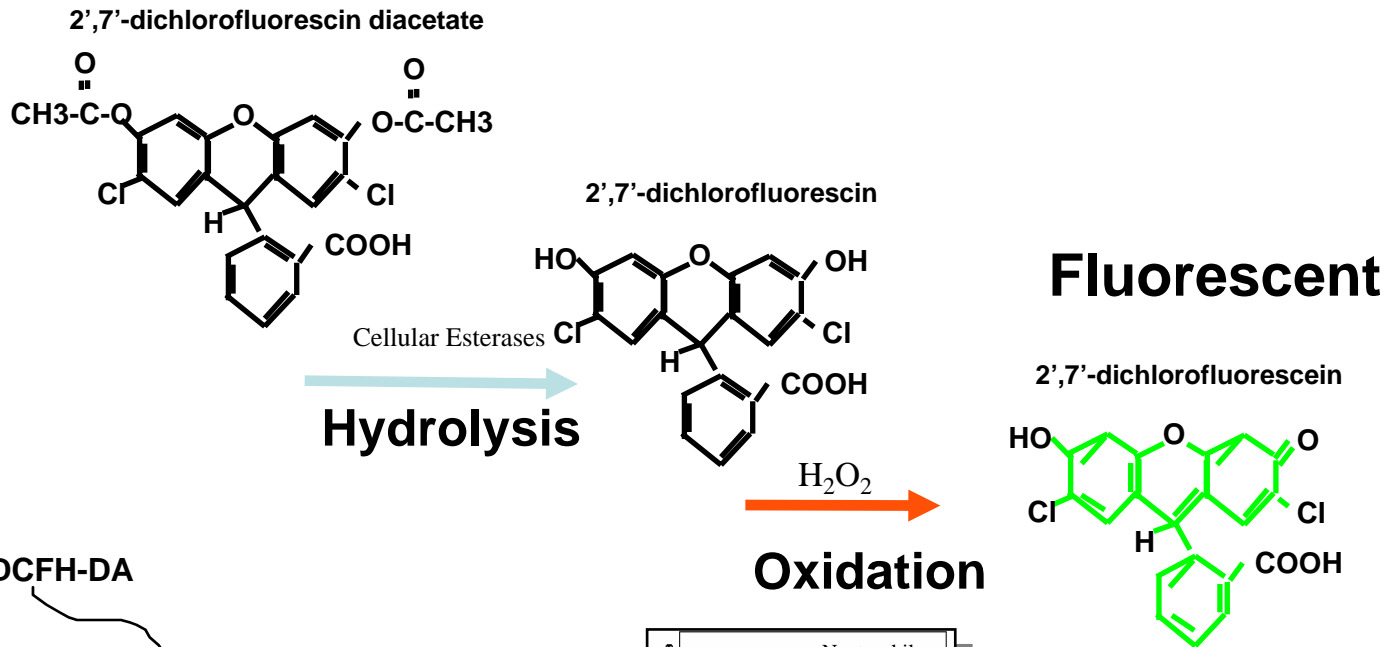


**So:** you have to explain each step in the process – this animation give time to do that – and the star on the right indicates how many mouse clicks to perform the entire animation sequence – add stars for each click necessary and animate them to disappear at each click

# Use diagrams or flow charts if possible



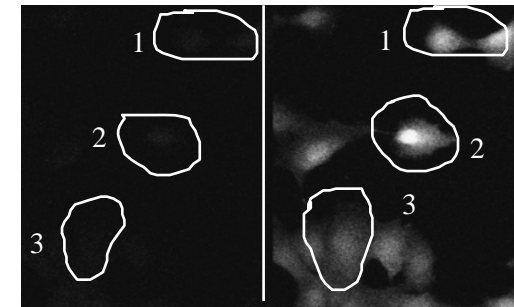
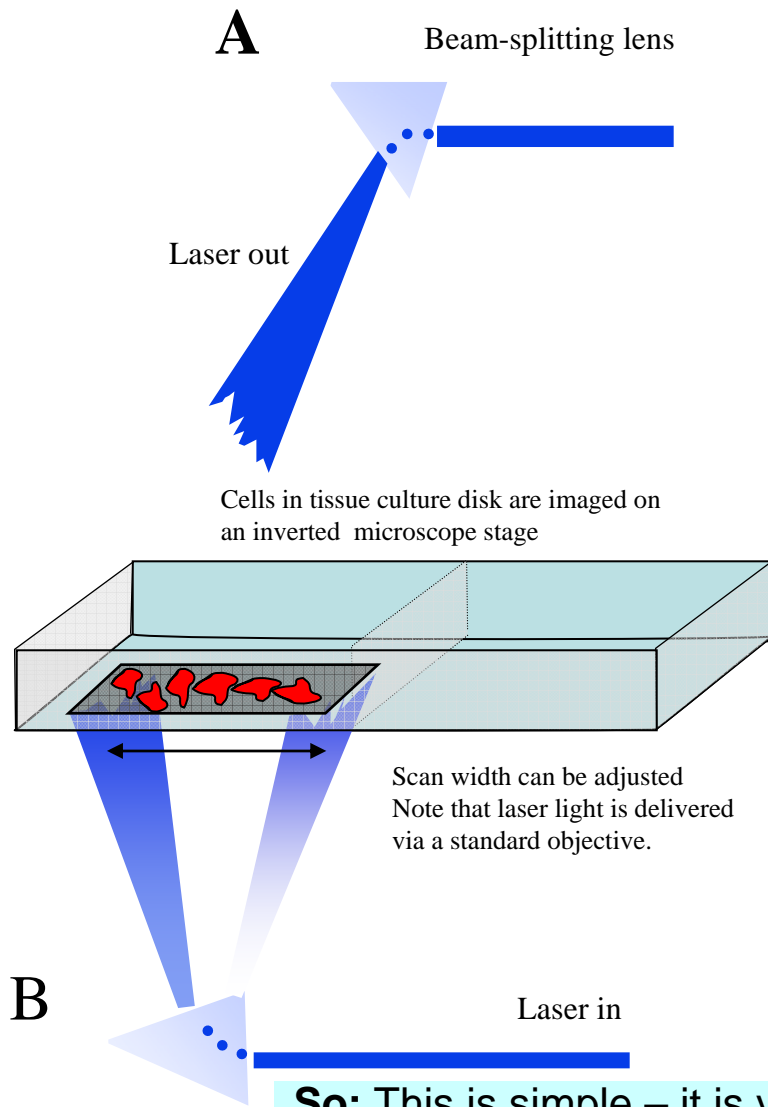
**So:** Simple – very simple is good.



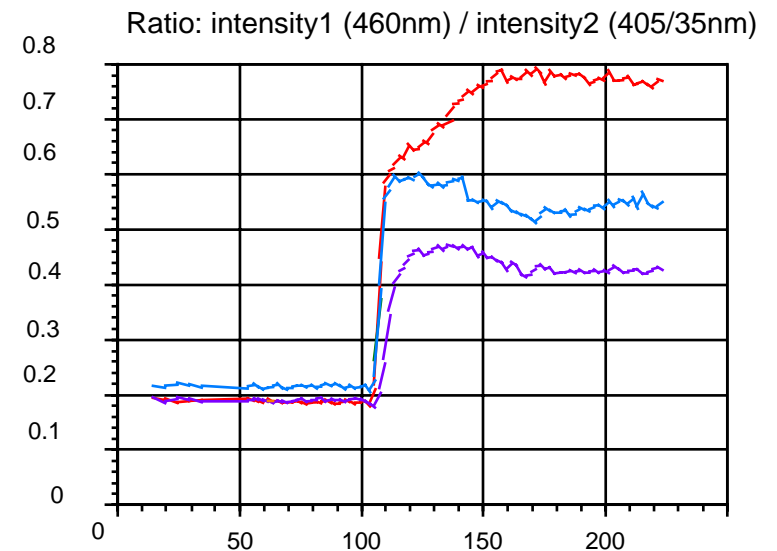
**So:** This is pretty complex – it needs a long time to explain.



# How a line scanning confocal works

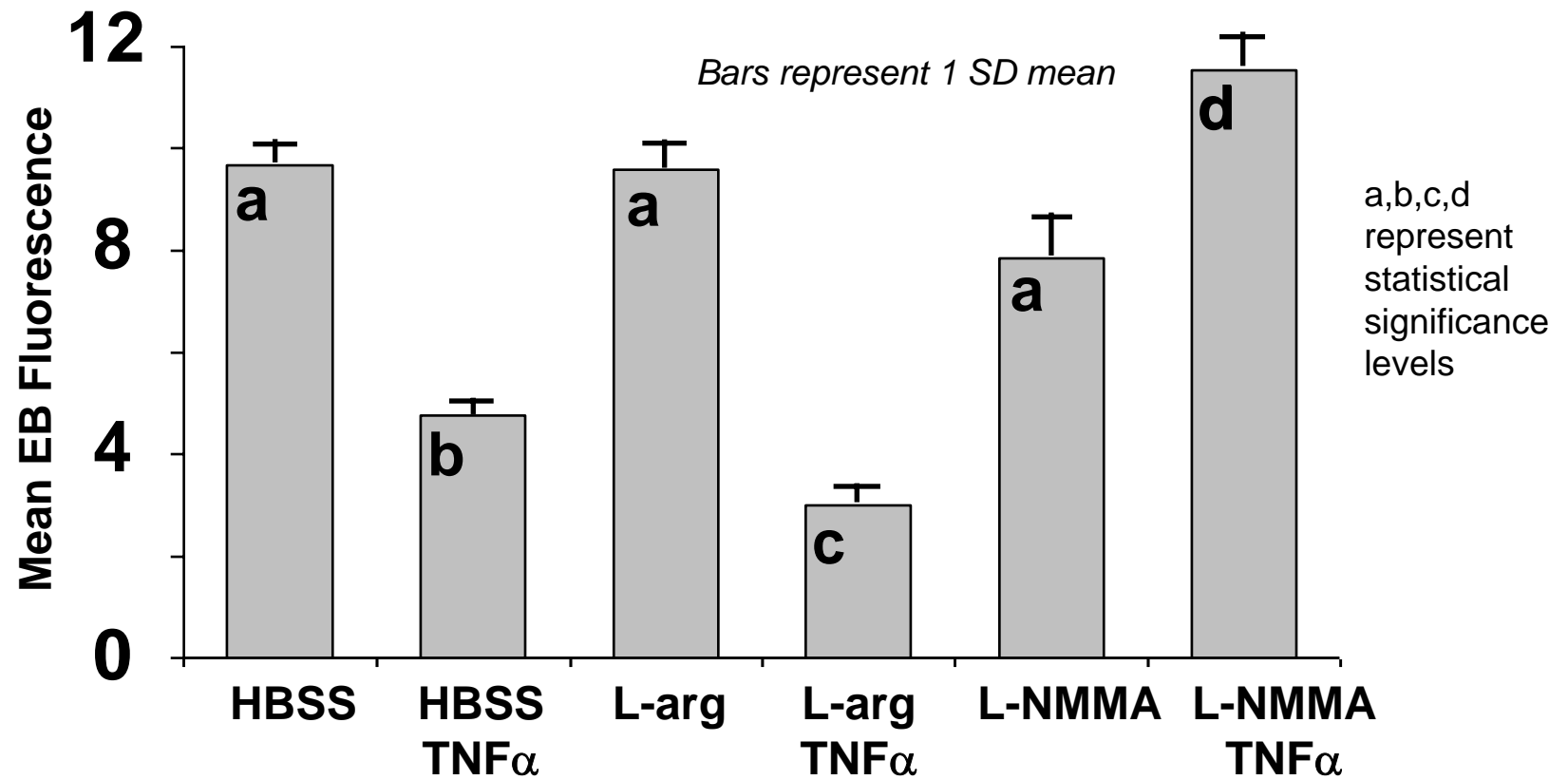


460 nm      405/35 nm



**So:** This is simple – it is very straightforward – explanation is easy.

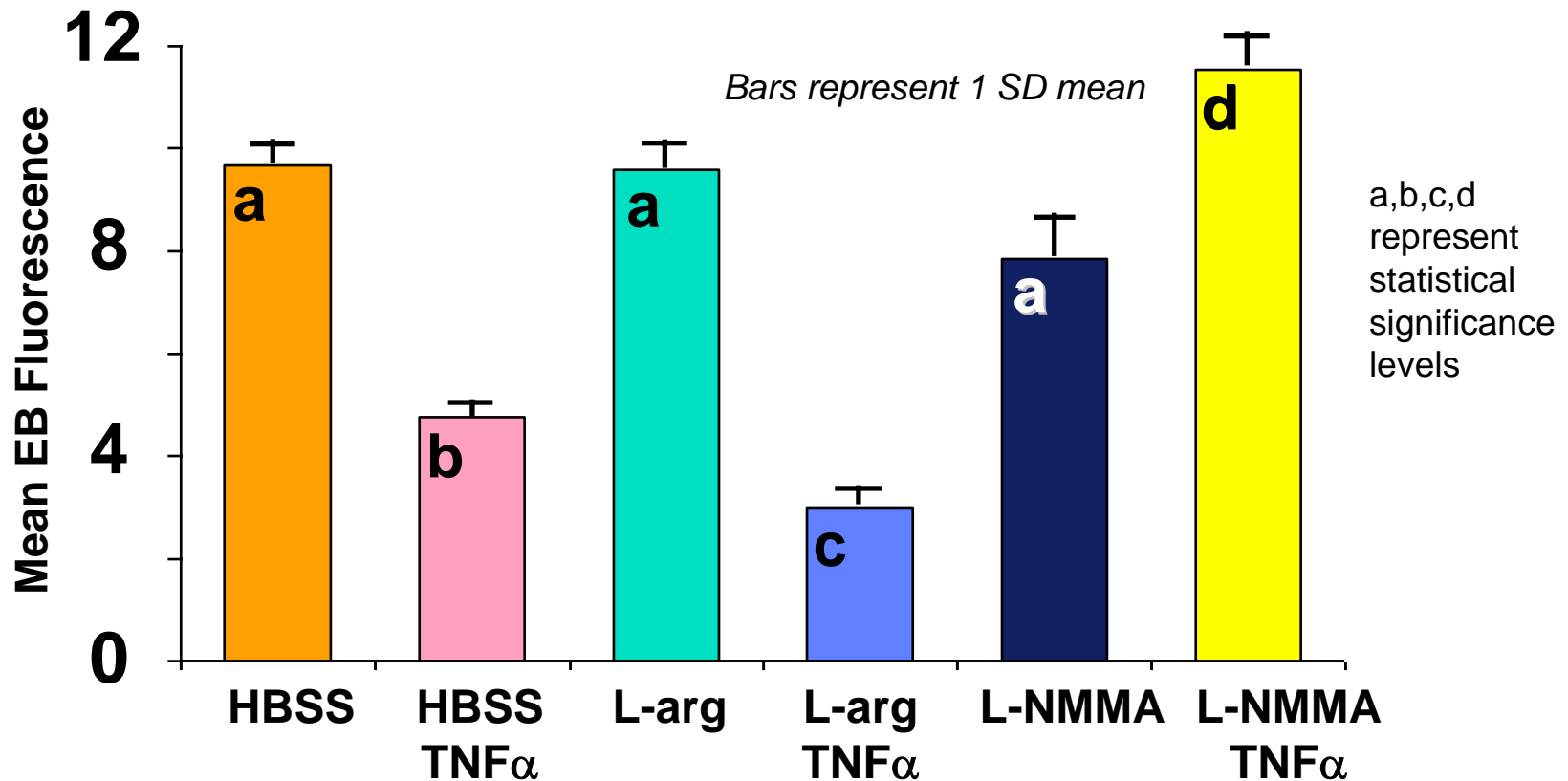
# Rat neutrophil oxidative burst with nitric oxide modulators



NO modulators increase superoxide, TNK reduces  $O_2^-$

So: Basic data, very, very simple

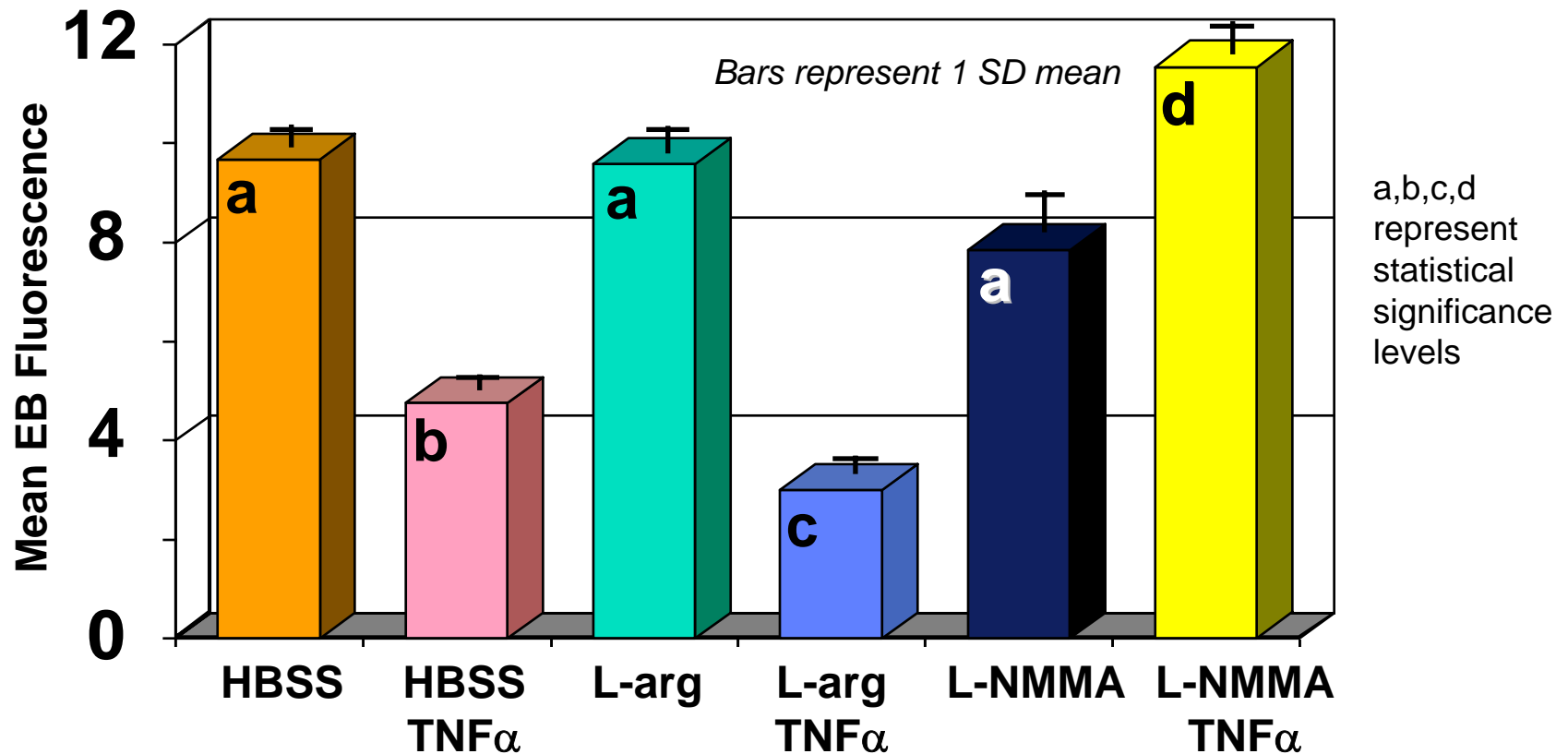
# Rat neutrophil oxidative burst with nitric oxide modulators



NO modulators increase superoxide, TNK reduces  $O_2^-$

**So:** Basic data, but color enhanced...careful tho' not to confuse what you are trying to explain. Do the colors add value to the data?

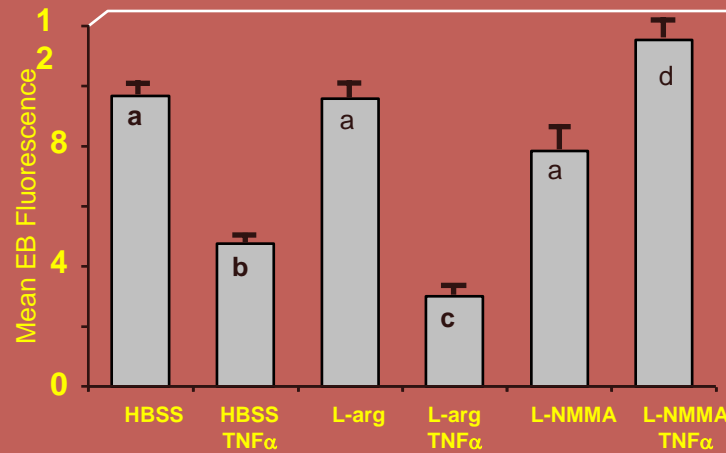
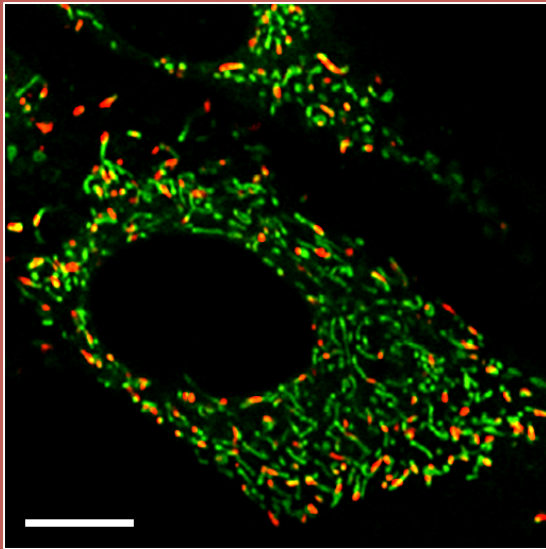
# Rat neutrophil oxidative burst with nitric oxide modulators



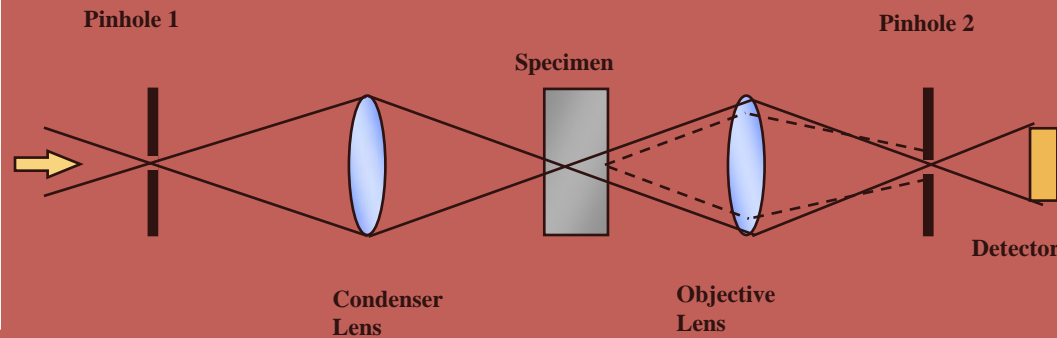
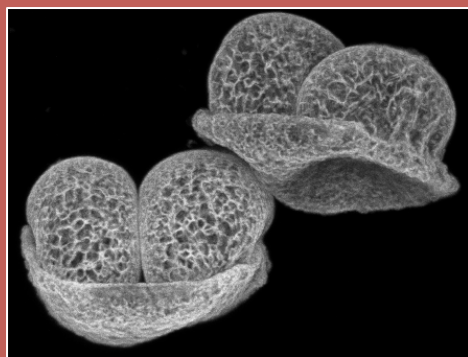
NO modulators increase superoxide, TNK reduces  $O_2^-$

**So:** Be careful when you use enhancement features. This is OK, but much more would become very distracting.

# Rat neutrophil oxidative burst with nitric oxide modulators



NO modulators increase superoxide, TNK reduces O $_2^-$



**So:** This is overboard – background is horribly distracting, and it's just a bad slide. The audience is wincing.....it's not acceptable!!



GATTTAGCACAGAGAAGGAATGGATATTTAACCTTGGCTCCTAATTTTCGGTGATATTTTCGA  
AAAAAGGAAAGAGAGGAAGGTGGTTTTTGTAACCTATTTGCAGACATCCATCTATCTGGTTAA  
CTAATATCCAATCTGGTATAATAAAAAAGATCAGAAGGGTTTACTATTAACATCCCAACC  
ACAATTTGCACATCTTTTTAATGCTGATTTTGGATGGAGATGAGATGACAATATATTCTTT  
CAAATCCCCATGTGCCAATCTCGAACAACTTTGATTATGAACTCACGAAATCTCTTCA  
AAAATTCTATAACAAGCAATCCAATGTTCTGGCTTGGTCCAAGATCAAATACCAGCCTTG  
.....



**Here is something important.....**

**So:** No – bad idea – if you have to tell the audience “..I know you can’t read this....but....” - don’t show it. This is a totally unacceptable slide!!

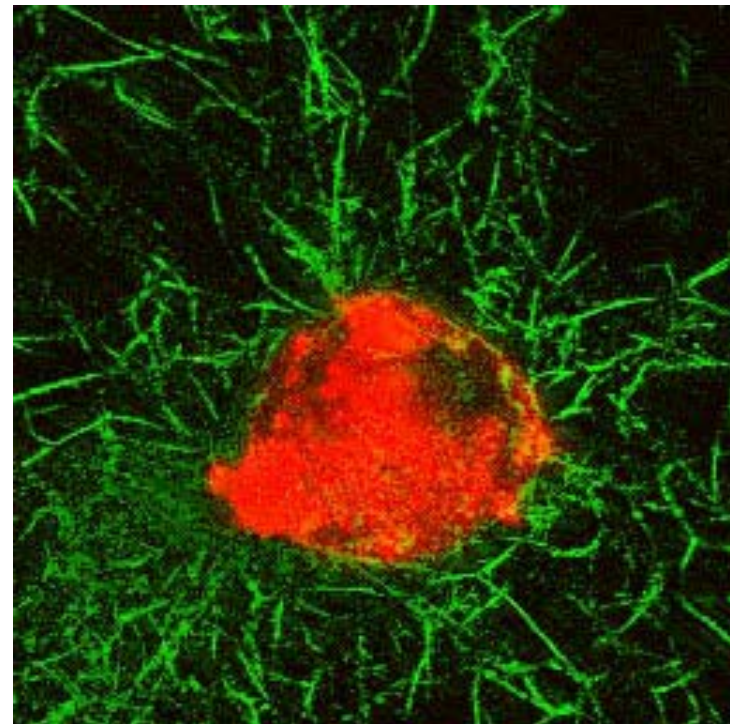
# Some things you should know about projectors and computers

- All projectors should be considered the “enemy”
- All projectors are different
- There are often 3 modes for your computer
  - Mode 1: Laptop screen only
  - Mode 2: Laptop and external monitor (Projector) (Fn/F8)
  - Mode 3: External monitor (projector) only (Fn/F8)
- Be careful using Mode 2 – Movies may not play on the projector
- At most meetings, KVM switches are used to connect laptops – regardless, you must pre-check the system out

**So:** Bottom line is check out the projector with ALL your slides before you give the presentation....make sure your movies work! How many times have I seen presentations where movies don't work? .... HUNDREDS!!

# Example of movie not playing in mode 2

The movie on the right plays OK on mode 2 but may not play on the projector. Some newer computers will play it regardless. When you copy your presentation to another computer...chances are the movies wont work. Use the “**Package for CD**” setting under FILE in Powerpoint™



**So:** It's a great movie, but when it does not work and you say “...well if you were able to see this movie, you would see...”.....it's not good!



# How Many Slides?

- Rule of thumb: Use 1 slide per minute of your allotted time including your opening and closing slides.
- You will spend much longer on some slides than you think.
- For a 20-minute talk, I suggest only 20 slides. If you fill up your 20 minutes, there is no time for questions.
- Don't you hate being the last speaker in a session where everyone has gone 5 minutes over and your 30-minute talk now has 15 minutes left? Don't do that to other speakers!!
- This presentation was designed for a 45-50 minute talk with 10-15 minutes for discussion. There are 44 slides in the actual presentation.

*The last 2 slides are explanations as to how the slides were made – an example of adding extra slides in case a question is asked about a topic. Slide #2 was added to give some “online” explanation. This is not shown in the seminar.*

**So:** 90 slides for a 45 minute presentation says “I am going to blow you away with data, but I don't care if you really understand what I am saying. My huge number of slides says ‘*I can't organize myself!*’”

# Answering Questions

1. Listen carefully to the question
  2. Do not interrupt or finish the question for the questioner
  3. Repeat the question for the audience in shortened form
  4. If you do not know the answer or how to approach, ask for more guidance
    - e.g. *“I am not sure I understand the question, could you elaborate.”*
  5. If you then do not know the answer, don't ramble, try this:
    - a. *“I am not sure of the answer, but one possible reason might be”*
    - b. *“I'd be happy to get back to you with the answer to your question after I do some research on the issue”*
  6. You can also shift the responsibility to your supervisor/boss if you are not sure what to do
    - e.g. *“Perhaps Professor X can answer that better than I”*
  7. NEVER argue with questioners...if they become really “pushy” and are being difficult just say
    - “Perhaps we can talk about this after the seminar”*
- You always have the option of simply saying
- “I don't know the answer to your question at this stage!”*

# Summary

- A good presentation requires much preparation
- Make a proper introduction and use a slide that shows the structure of your talk
- Have slides that are clean, clear, and readable
- Use approximately 1 slide per minute
- Show a summary slide at the end
- Make the final slide an acknowledgement slide
- Add a few extra slides AFTER your last slide to use in case questions arise in those areas
- Conclude by saying : “*Thank you very much for your attention.*” Stop and let the audience clap!!!
- Do NOT ask for questions!!!!!!!!!!
- Never ask for questions!!
- It’s NOT your right to ask for questions!!!
- What do you think about asking for questions?

**So: Do NOT ask for questions!!**

# Acknowledgements

- **Tissue Engineering Studies**

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- Bev Waisner

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- Stephanie Sincock
- John Thomas
- Gerald Gregori
- Kathy Ragheb

- **Oxidative Metabolism Studies**

- Carl-Fredrick Bassoe
- Nianyu Li
- Kathy Ragheb
- Gretchen Lawler



## Funding Sources

National Institutes for Health  
National Science Foundation  
Any company you received funds, Inc

**So:** List names of those who contributed to the work. Also list your funding sources, and acknowledge any companies that contributed. People must know if your work has been funded by a corporate sponsor. It's the law to identify them if you work is federally funded in any way!

# How were the Printouts Prepared?

- Slides were made in PowerPoint™
- They were “printed” to Adobe Acrobat™ to create a PDF file
- The PDF was printed 6 per page, framed in Acrobat, which allows you to fill the page
- This gives a larger slide than printing directly to the printer from PowerPoint

# About this Presentation

- It was designed to assist graduate students to create quality presentations
- You may copy this and use it for any purpose, it may not be commercialized
- If you do use it, please acknowledge the source as:

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Professor, Purdue University

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Web: [www.cyto.purdue.edu](http://www.cyto.purdue.edu)

The actual presentation is at <http://www.cyto.purdue.edu/Education/index.htm>

This talk has been presented several times since 2000. This current version 09/02/03