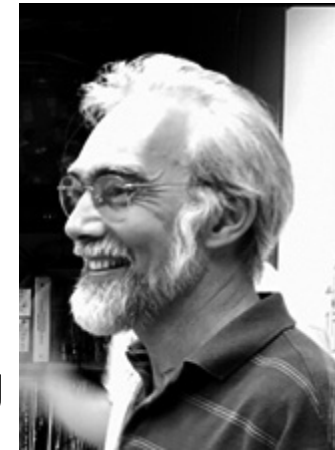


Presentation 101 for Graduate Students

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

Notes 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

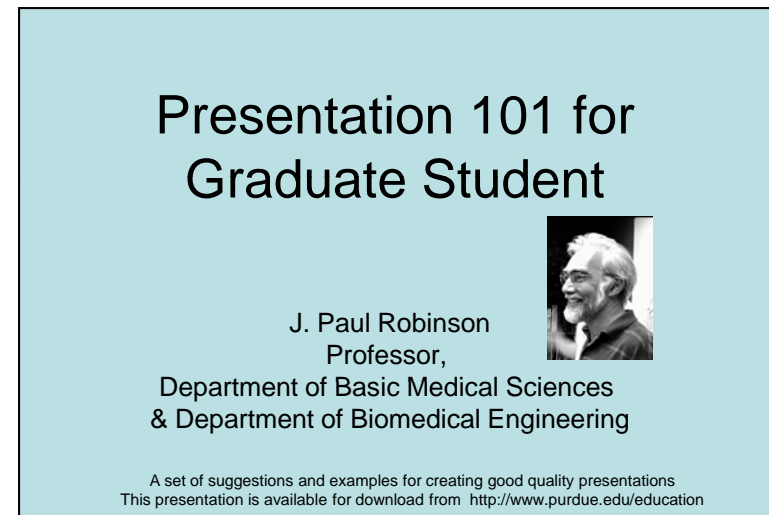
The Three Essential Features of a Good Presentation

- 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 be 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. Then they know to clap with great gusto!

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!!)

Key Material Items to consider

- Your personal habits
- Use of the laser pointer
- The slide background
- Use of color/fonts
- 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

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

Using a pointer

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

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

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. Try to pretend you are not at all fazed!!

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!!

Fonts

- Try to use a single, clear font across the entire presentation
- Make the text large enough that the audience can read it
- *Some fonts are really bad*
- *Some are worse*
- And some should be avoided at all costs

Don't even think of doing this!

Note: You might think that your science is a work of art, but the art is in the science not the art!! Some slides in this presentation use other fonts, but they are taken from various talks to show particular points...so ...

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 much easier to see!!

Backgrounds

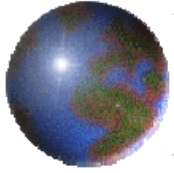
- Be careful when using backgrounds available from templates
- A more conservative approach is safer
- You want the audience to focus on your data, not your background
- If you must, use a simple color like blue
- Some examples follow in the next 5 slides – the last 2 are not acceptable

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. There is no question as to what your message is.



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 (logo and top bar work OK)
Colors are muted and tasteful

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 – it's 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

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

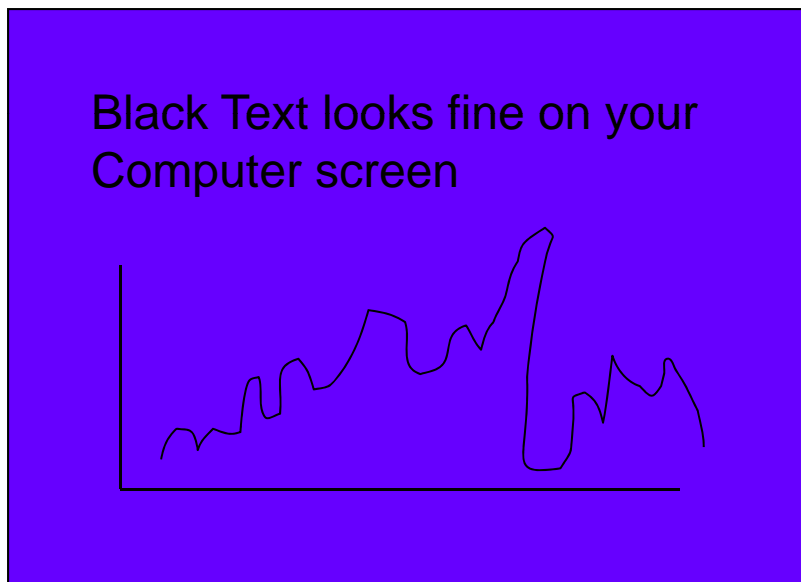
– Blue text cannot be used on red backgrounds or vice versa

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

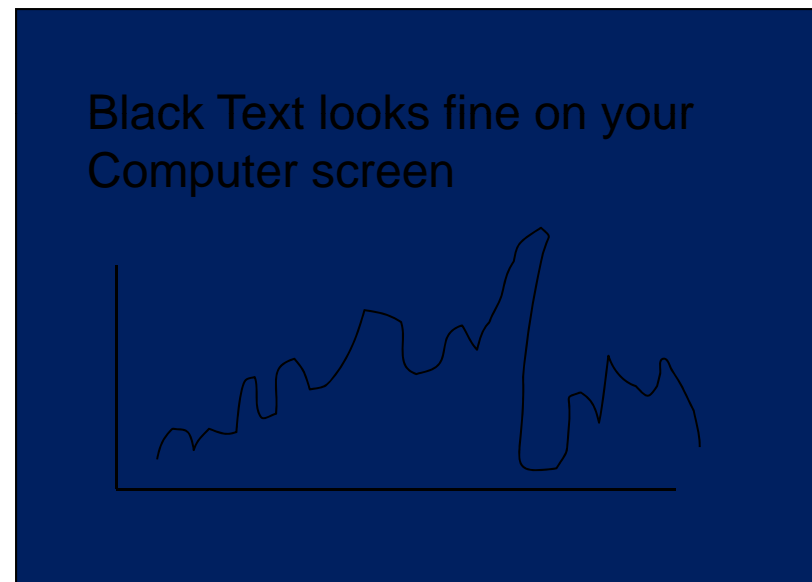
So: NEVER use red and blue together...it might look OK on your computer screen, but it's horrible on the projector screen!!

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. (Note for PDF – this slide has gratuitous animation you won't see on the PDF!!)

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

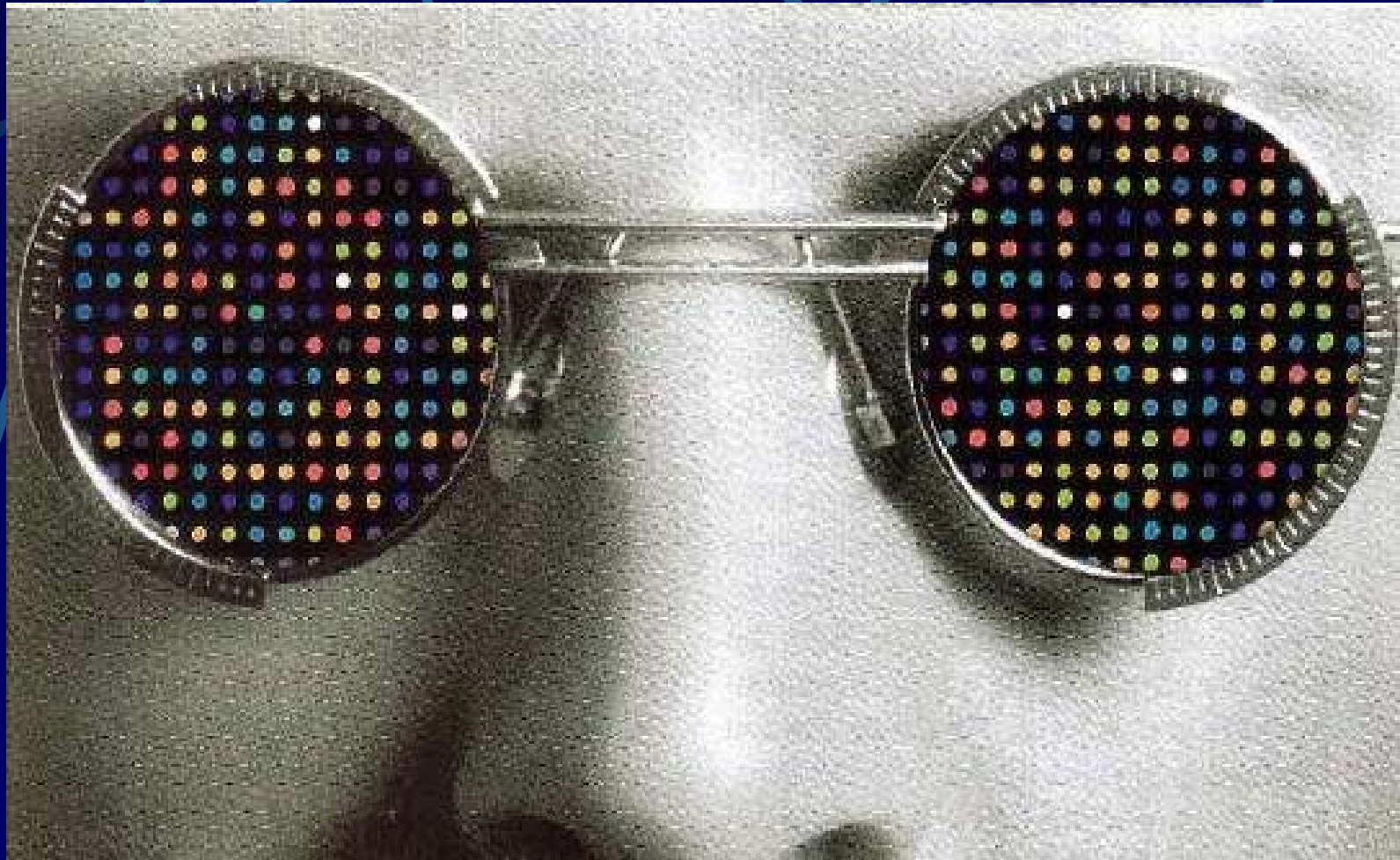
So: If you want to make it a little more attractive...this works well.

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

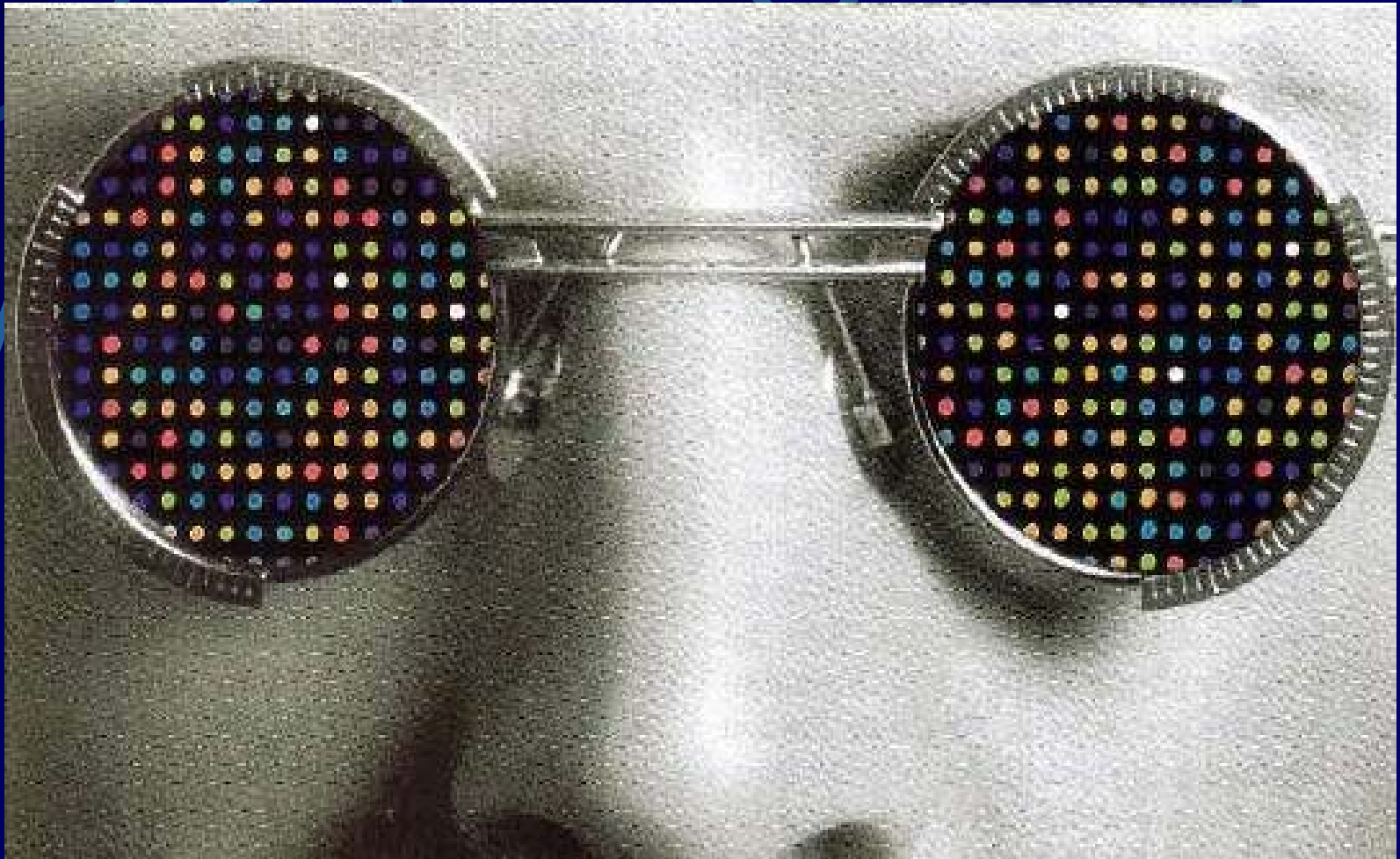
So: “Ditzy” animations are really off-putting to the audience. Good animations, such as how a reaction takes place, are fine.

And for Imaging Technologies?



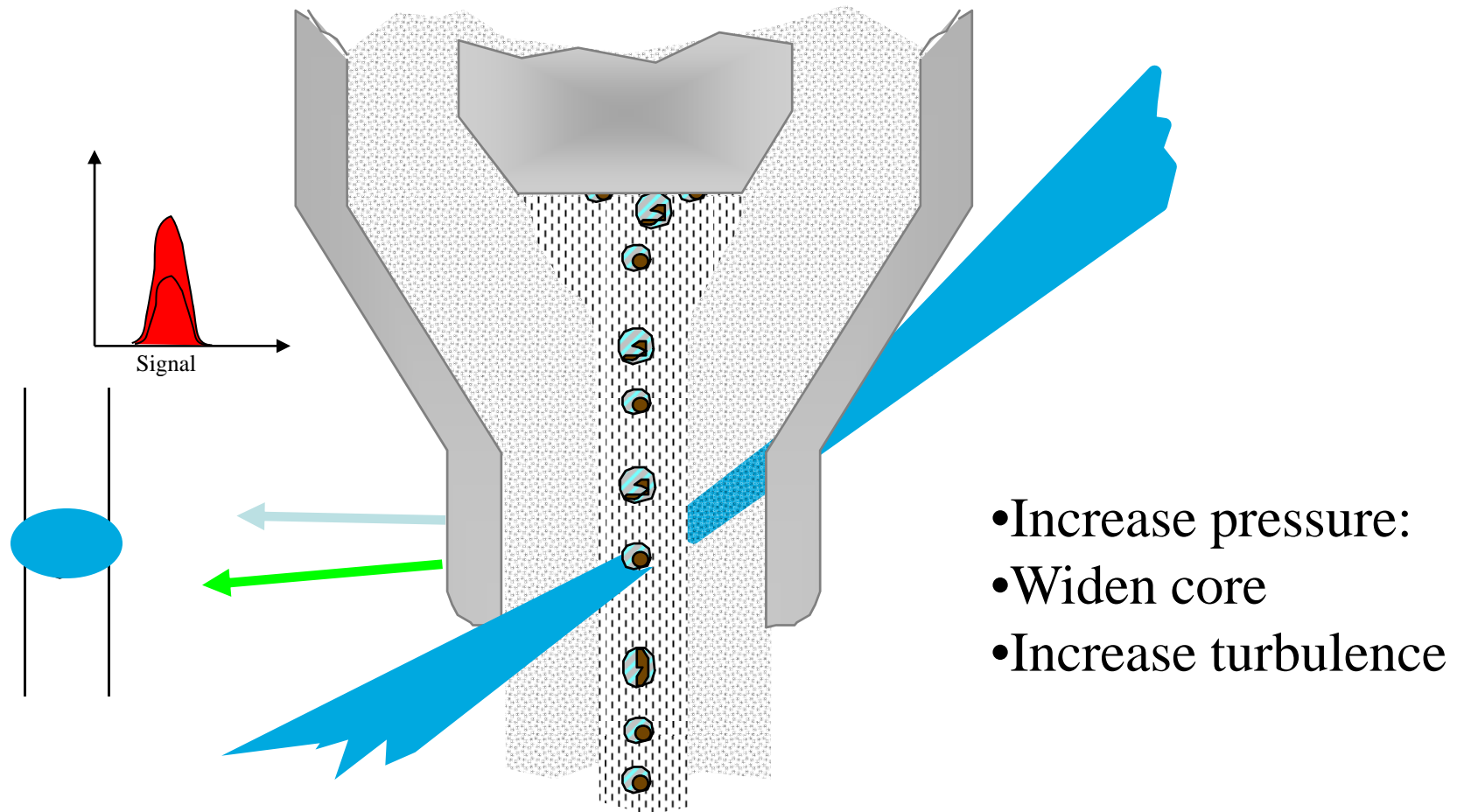
So: Example - simple animation – it works but the background is still nasty!

And for Imaging Technologies?



So: Example – gratuitous animation – plain annoying!!

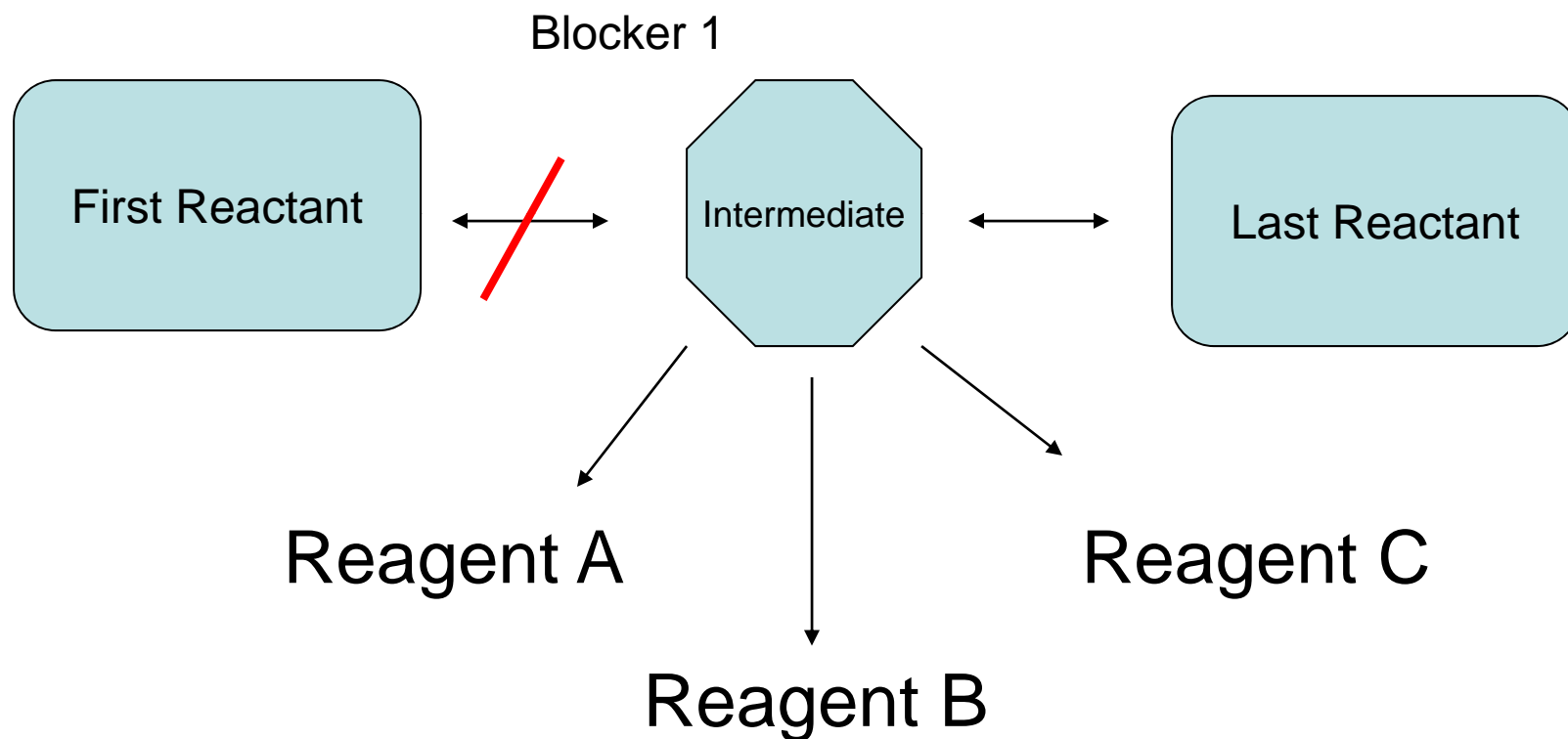
Hydrodynamically focused fluidics



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

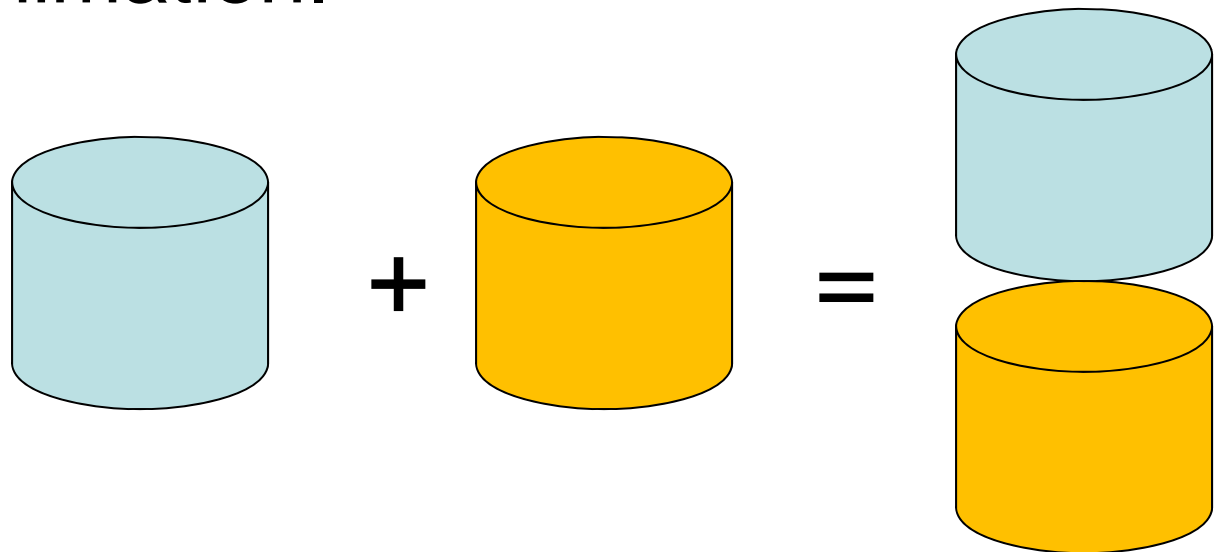
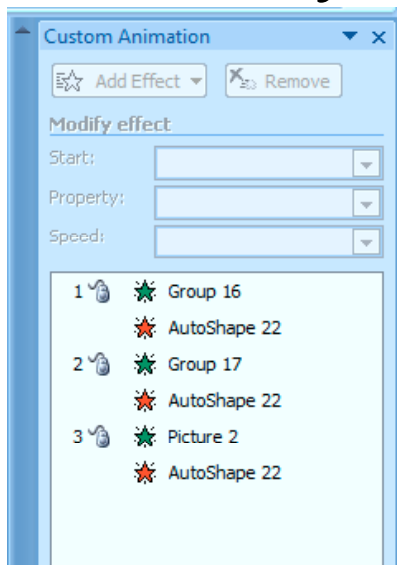


So: Simple – very simple is good. Again, note the 3 stars on the right – these disappear after each mouse click – this way I know how many animation components there are in my slide. Remember this slide will take time to explain.



Animation helper

- Place a small icon ✨ on the bottom of the screen to tell you how many steps there are in your animation.

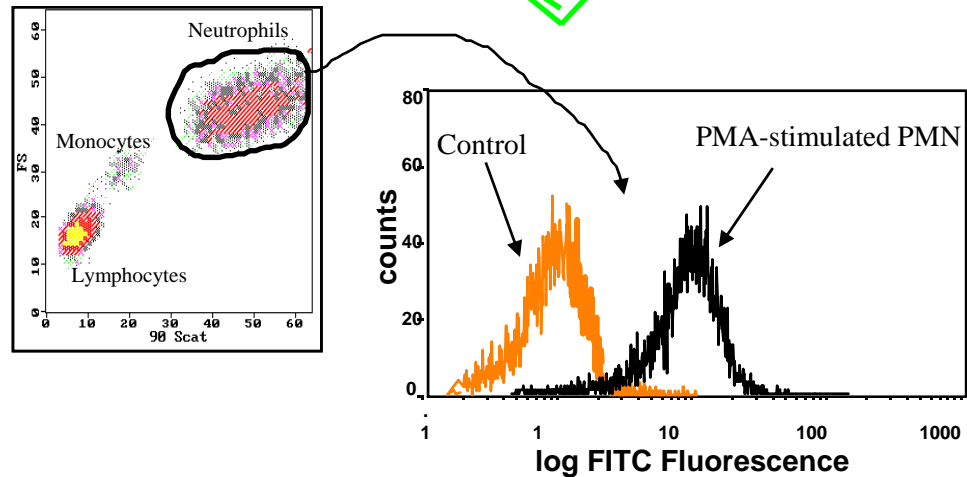
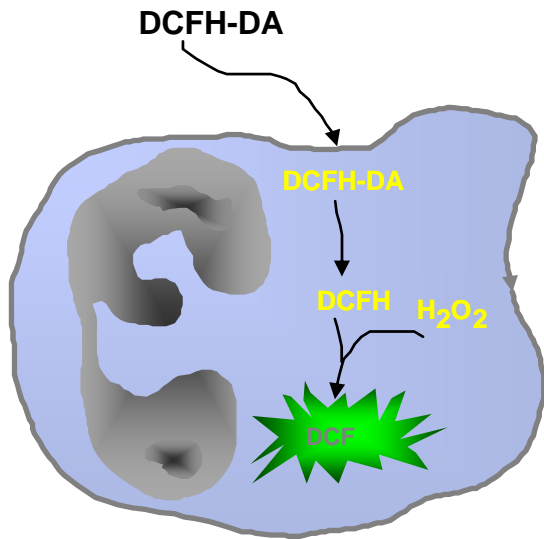
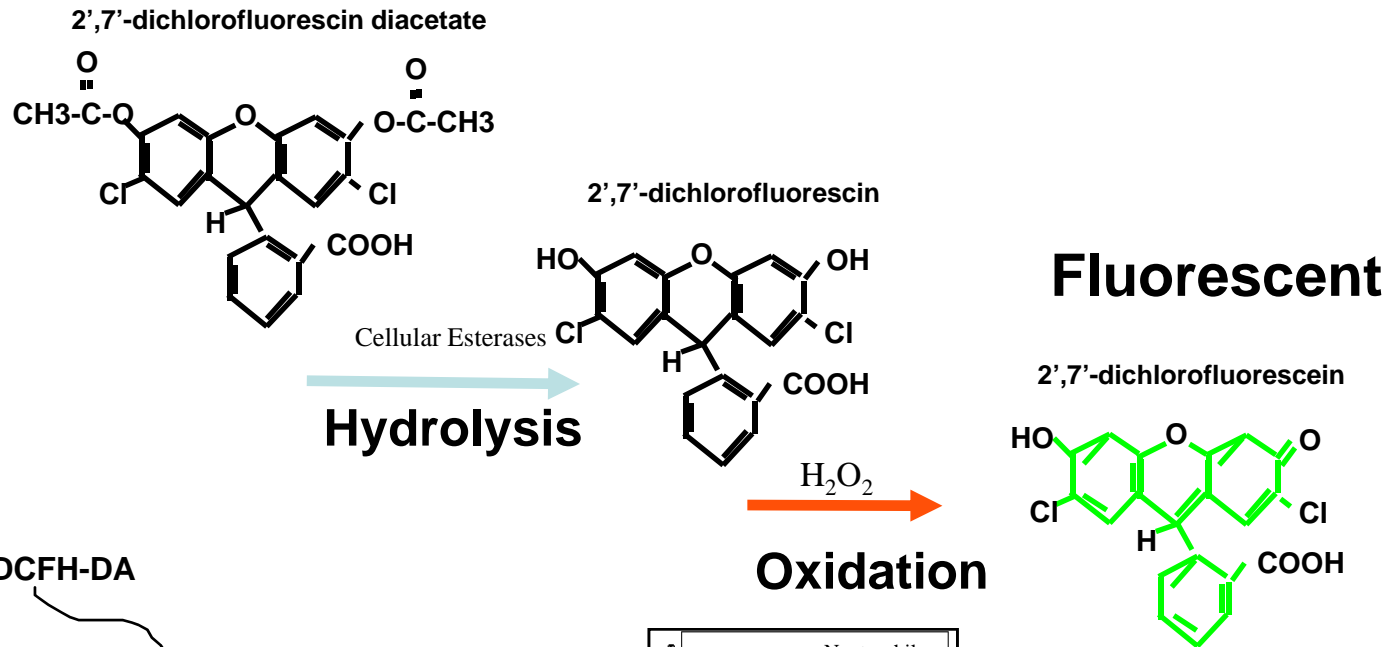


So: Note the stars indicating the number of mouse clicks left...this helps to remind you of how many animation steps you have

12:51 PM

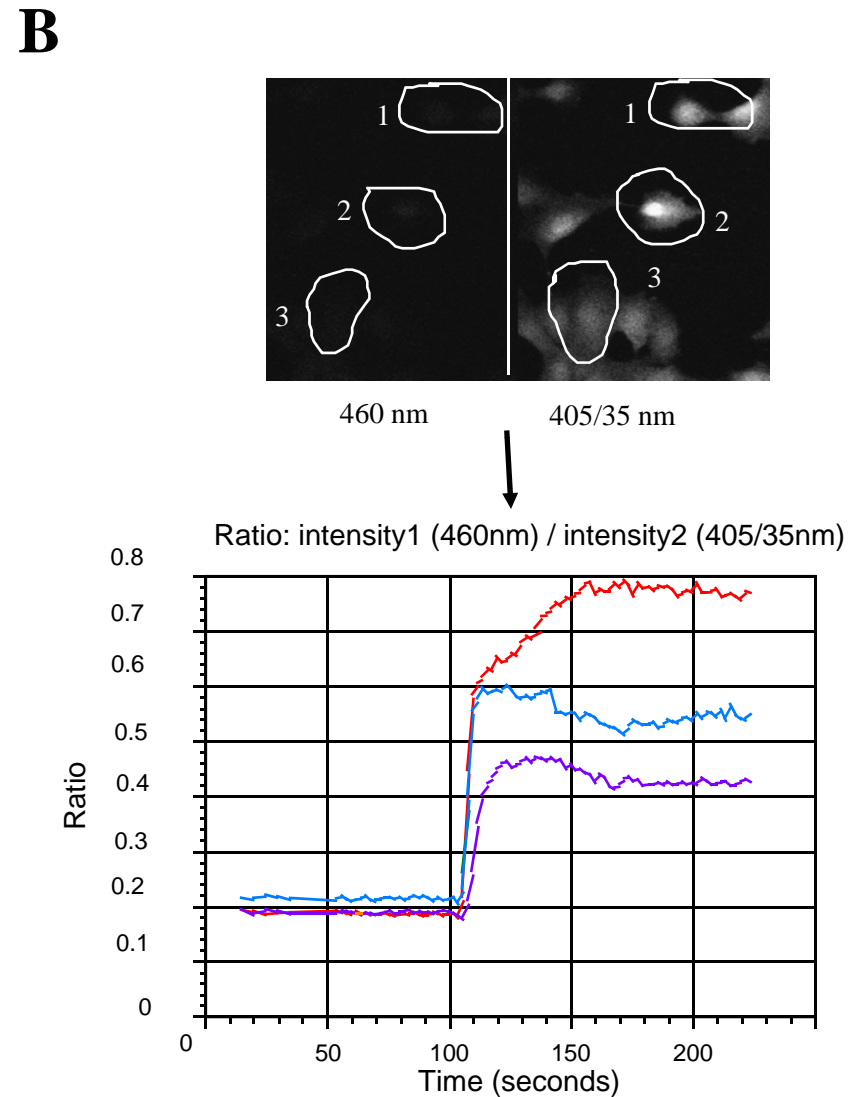
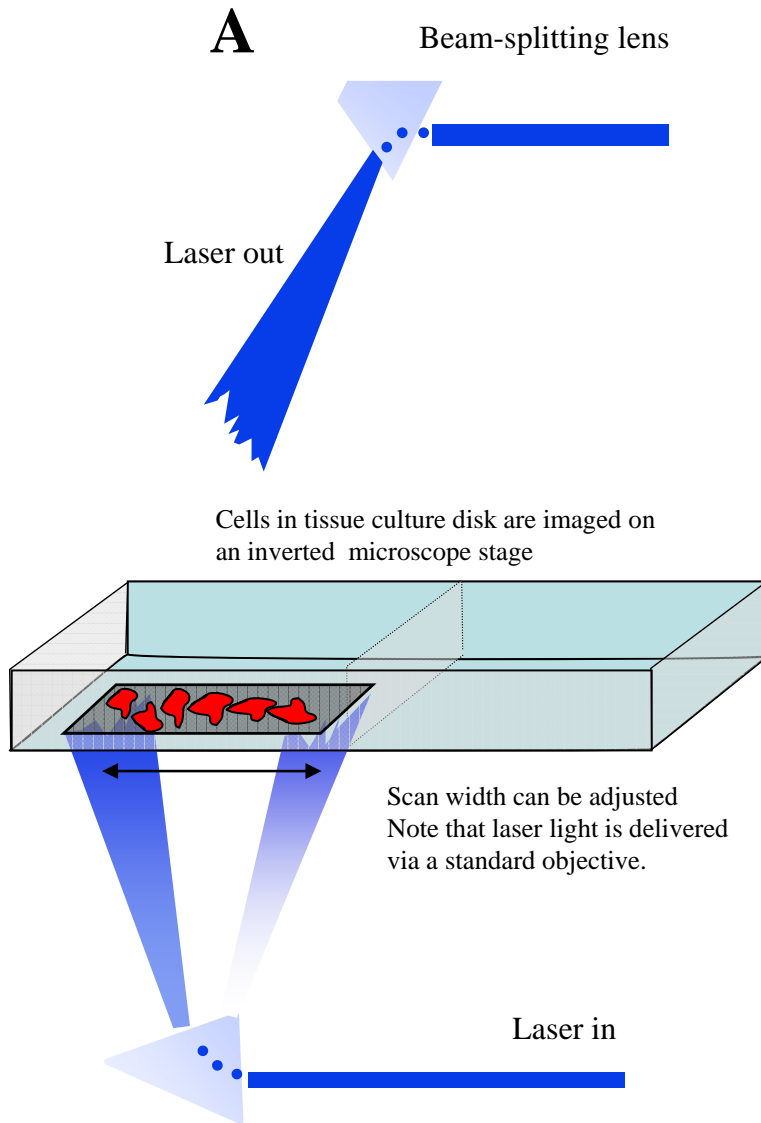


33 of 46



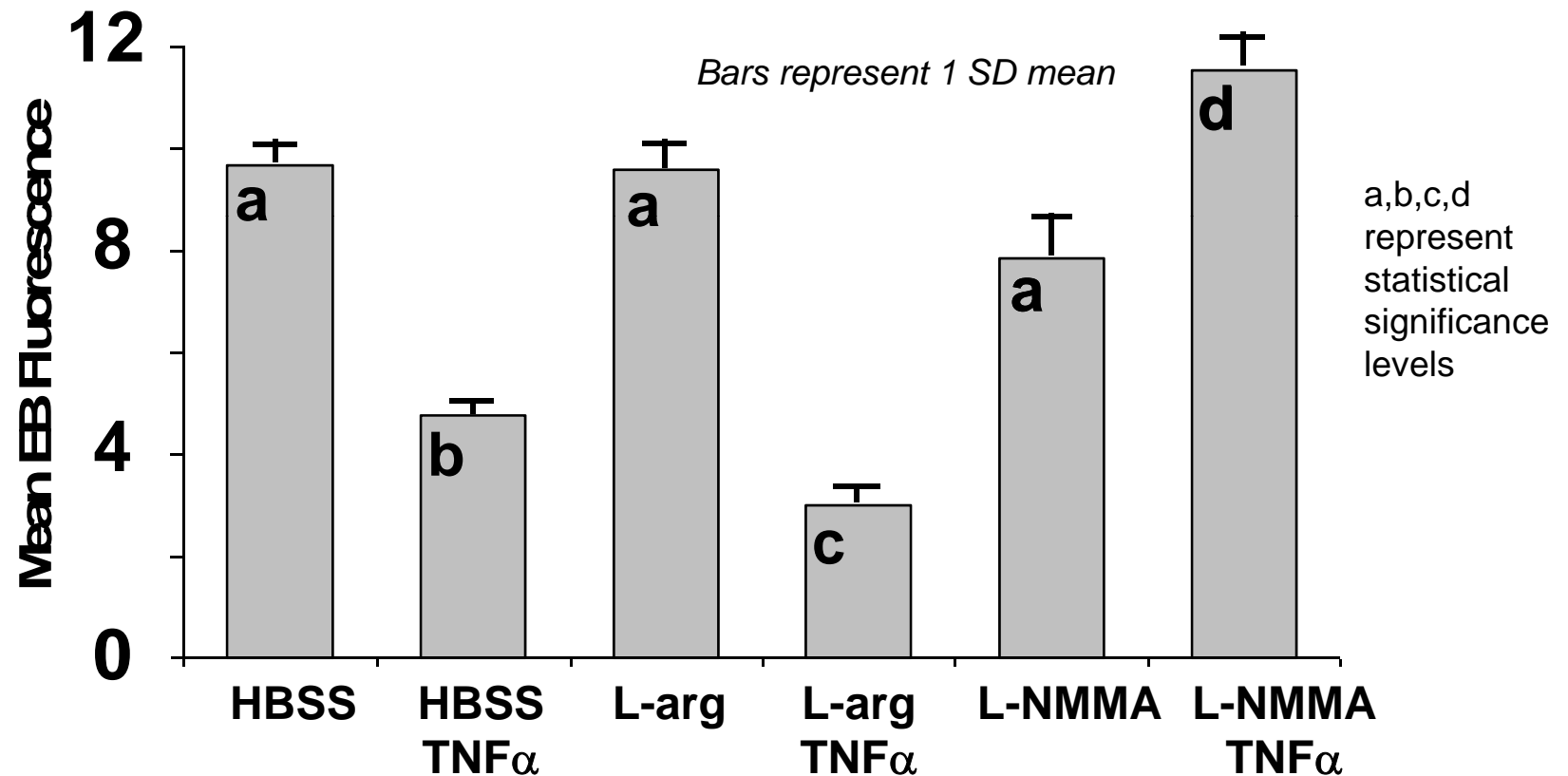
So: This is pretty complex – it needs a long time to explain.

How a line scanning confocal works



So: This is simple – it is very straightforward – explanation is easy but it will take some time – divide the slide into two parts, and run down the left, then move to the right side

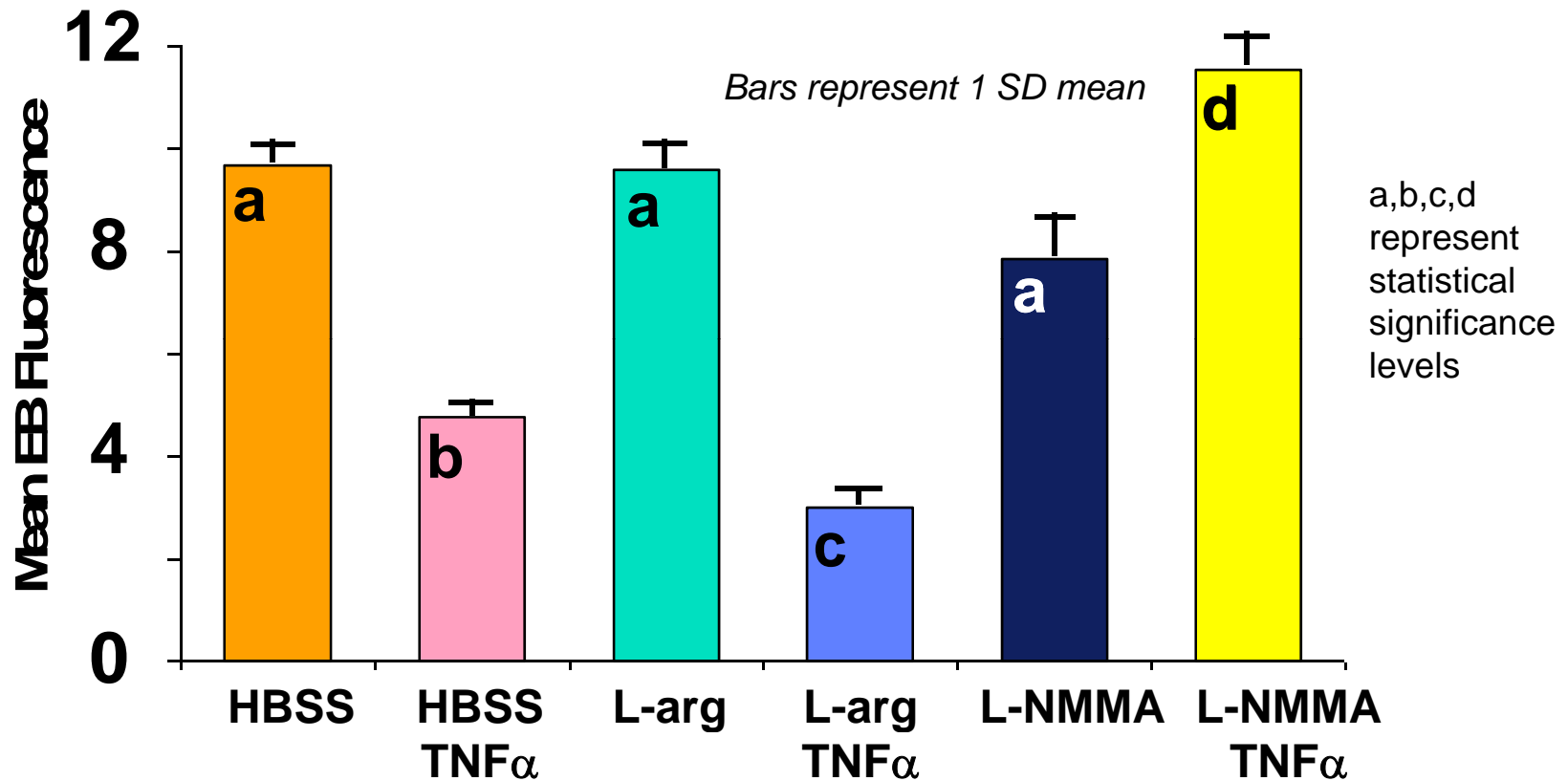
Rat neutrophil oxidative burst with nitric oxide modulators



NO modulators increase superoxide, TNK reduces O_2^-

So: Basic data, very, very simple

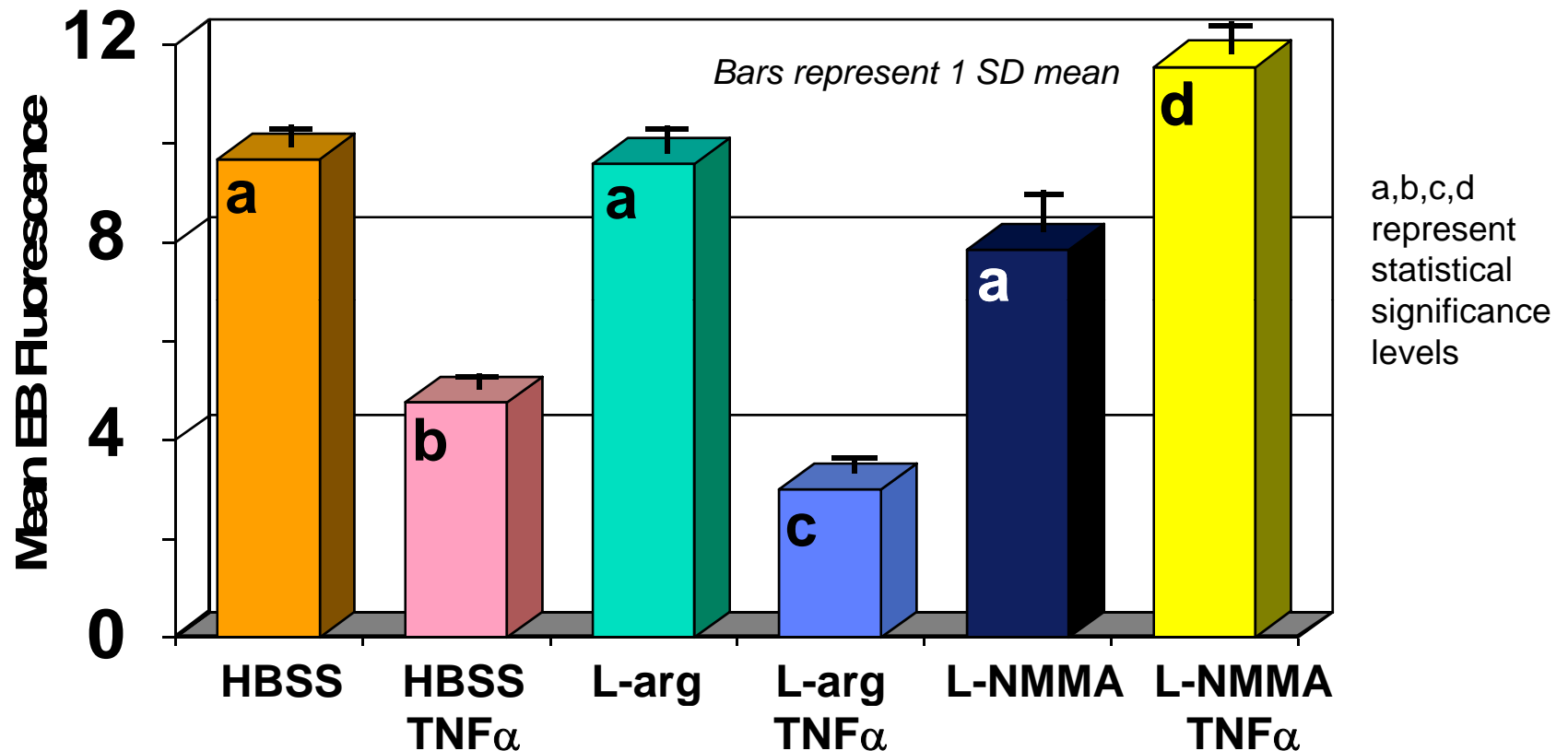
Rat neutrophil oxidative burst with nitric oxide modulators



NO modulators increase superoxide, TNK reduces O₂⁻

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?

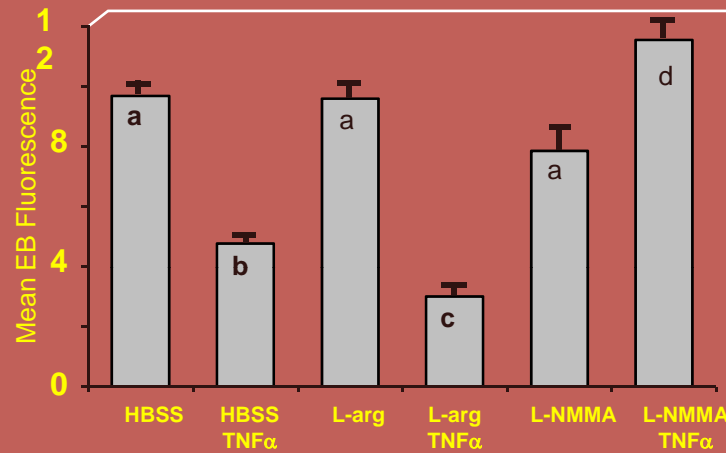
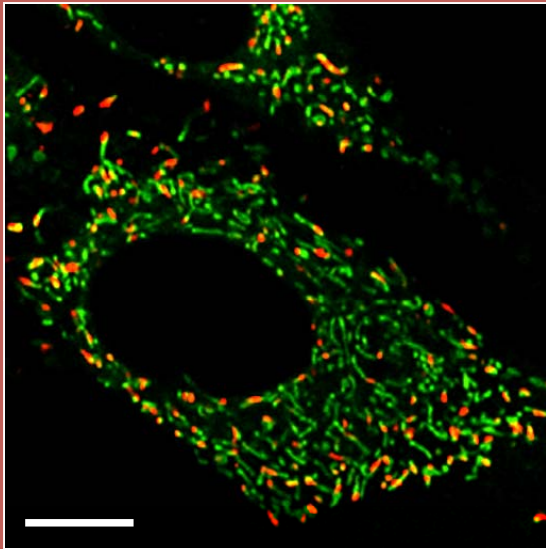
Rat neutrophil oxidative burst with nitric oxide modulators



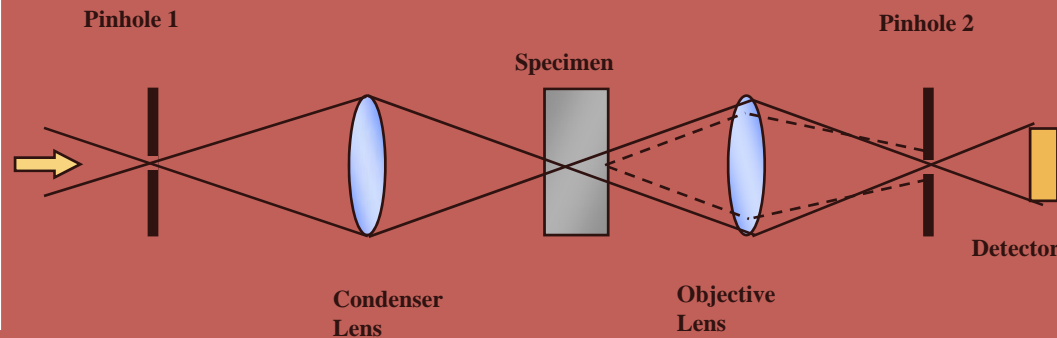
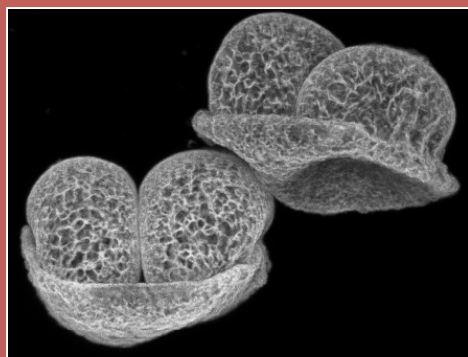
NO modulators increase superoxide, TNK reduces O_2^-

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

Rat neutrophil oxidative burst with nitric oxide modulators



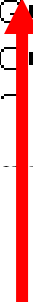
NO modulators increase superoxide, TNK reduces O $_2^-$



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



```
GATTTAGCACAGAAGAATGGATATTTAACCTTGGCTCCTAATTTCCGGTGATATTTTCGA
AAAAAGGAAAGAGGAAGGTGGTTTTTGTAACACTATTTGCAGACATCCATCTATCTGGTTAA
CTAATATCCAATCTGGTATAATAAAAAAGATCAGAAGGGTTTACTATTAACATCCCAACC
ACAATTTGCACATCTTTTTAATGCTGATTTTGGATGGAGATGAGATGACAATATATTCTTT
CAAATCCCCATGTGCCAATCTCGAACAAACCTTTGATTATGAACTCACGAAATCTCTTCA
AAAATTCTATAACAAGCAATCCAATGTTCCGGCTTGGTCCAAGATCAAATACCAGCCTTG
.....
```



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!! NOTE: For PDF versions you will not see that the entire slide has a huge sequence all over it - you can’t read anything!!

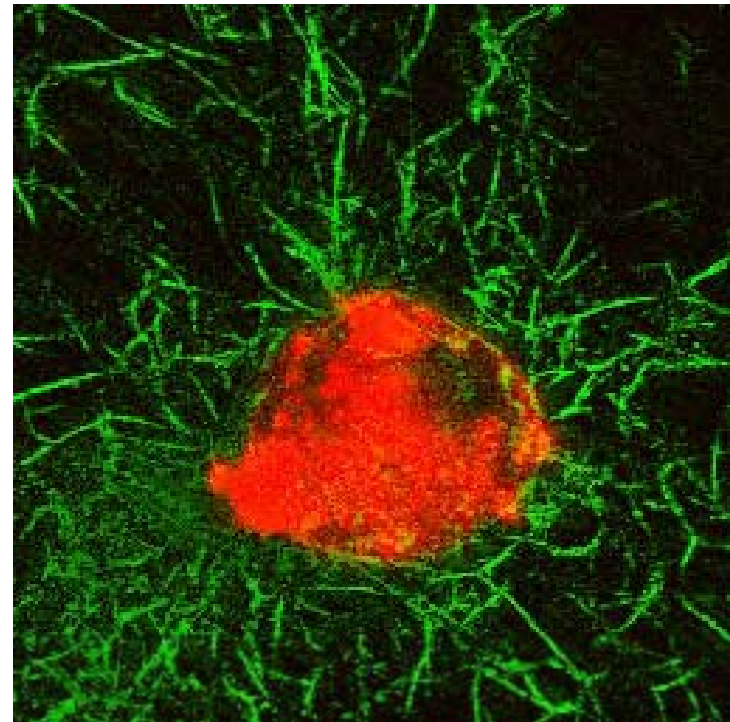
Some things you should know about projectors and computers

- 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**

- Sherry Harbin
- Blayne Roeder
- Alaina Pizzo
- Klod Kokini
- Jennie Sturgis
- Bartek Rajwa
- Bev Waisner

- **Microbiology/Biofilms**

- 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

Features that can be added

- You can place these features using
- “**Slide Master**” – but note that PPT differentiates between different “masters” so you can actually have many different styles that complicate these features (this presentation has many styles as I tool slides from different presentations)

A copyright statement is added using **Header & Footer**

Slide number is added using **Header & Footer**
(I know – 48 of 46 sides is an odd number!)

A clock can be added that shows real time by using **Header & Footer** and activating update in real time

12:51 PM

48 of 46

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:

J. Paul Robinson, Ph.D.

Professor, Purdue University

Email: jpr@flowcyt.cyto.purdue.edu

Web: 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 06/02/10