

Science Communication: Preparing and Delivering a Successful Oral Presentation

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Preparing the Presentation: Step by Step

- Plan
- Message
- Structure of the talk
- Practice
- Give the Presentation
- Questions and answers
- The Don'ts
- Polish the presentation

Plan the Presentation

- Assess the audience
 - What your audience know about the subject
 - What background information you have to include
 - What terms you have to define
- What do you want the audience to learn?
 - Think about this as you construct your main message
- The time available for the presentation
 - Select, synthesize, and simplify
- The place where you are going to make the presentation

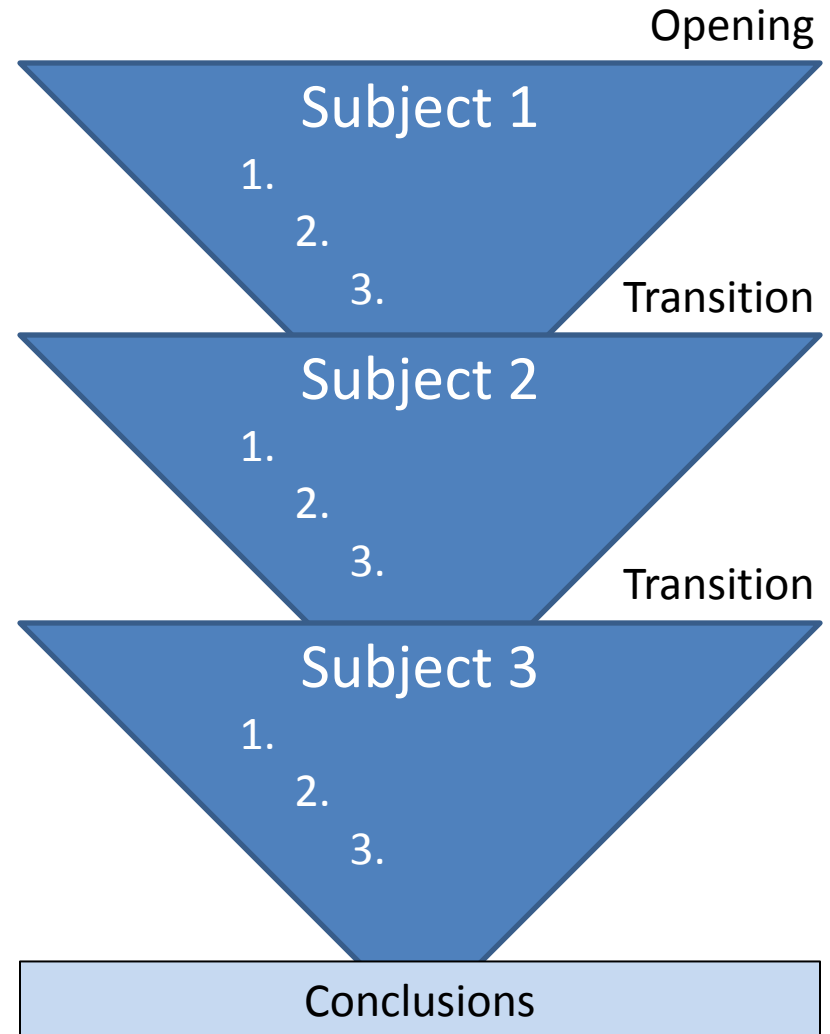
Expertise of the audience

“When they are interested, teach them. When they don’t want to be there involve them. When they are uninterested, entertain them”

Message and Outline

- Try to capture the message in a single sentence
- What do I want the audience to know?
- How do I present my talk such that the audience will understand and remember what I have to say?
 - *Identify the main points/scientific questions you want to address*
 - *Develop answers/explain the approach to solve these questions*

Three Triangle Outline (Chunk Method)



Structure of the Presentation

General Introduction

- Goals, aims, motivation
- Compare your research to that in the literature
- What is novel about your research

Time:
~25 %

Methods, Results, Discussion

- Group together what belongs together
- Select results and order them
- Make smooth transitions between major points
- Experimental approach, major findings and significance

Time:
~40 %

Conclusion and Future Work

- Don't have to many points
- Connect your results with the overview statement
- Use cartoons, if possible

Time:
~15 %

Practice

- Practice – stand up and say the words out loud
 - You develop a natural flow
 - You come up with better phrasings and ways to describe things
- Don't memorize the talk
- Timing: absolutely necessary
 - Going overtime is an offense to the audience and to the speakers following you

Giving the Presentation

“Tell’ em what you’re going to tell them. Tell them.
Tell them what you told them.”

Eduard R. Murrow

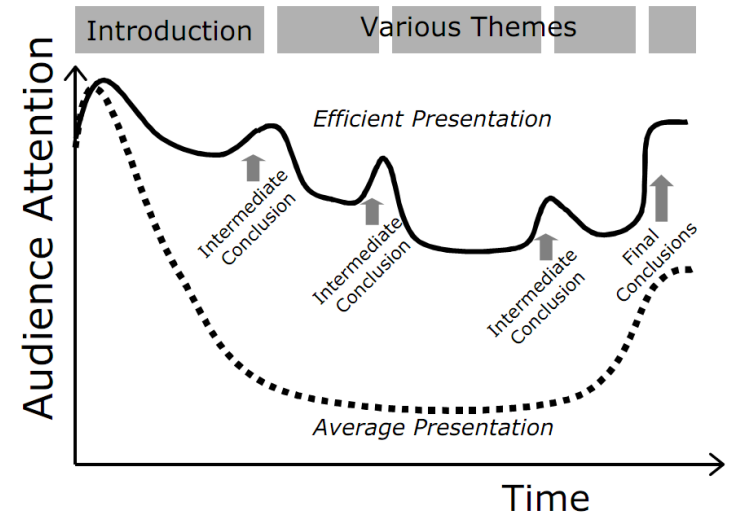
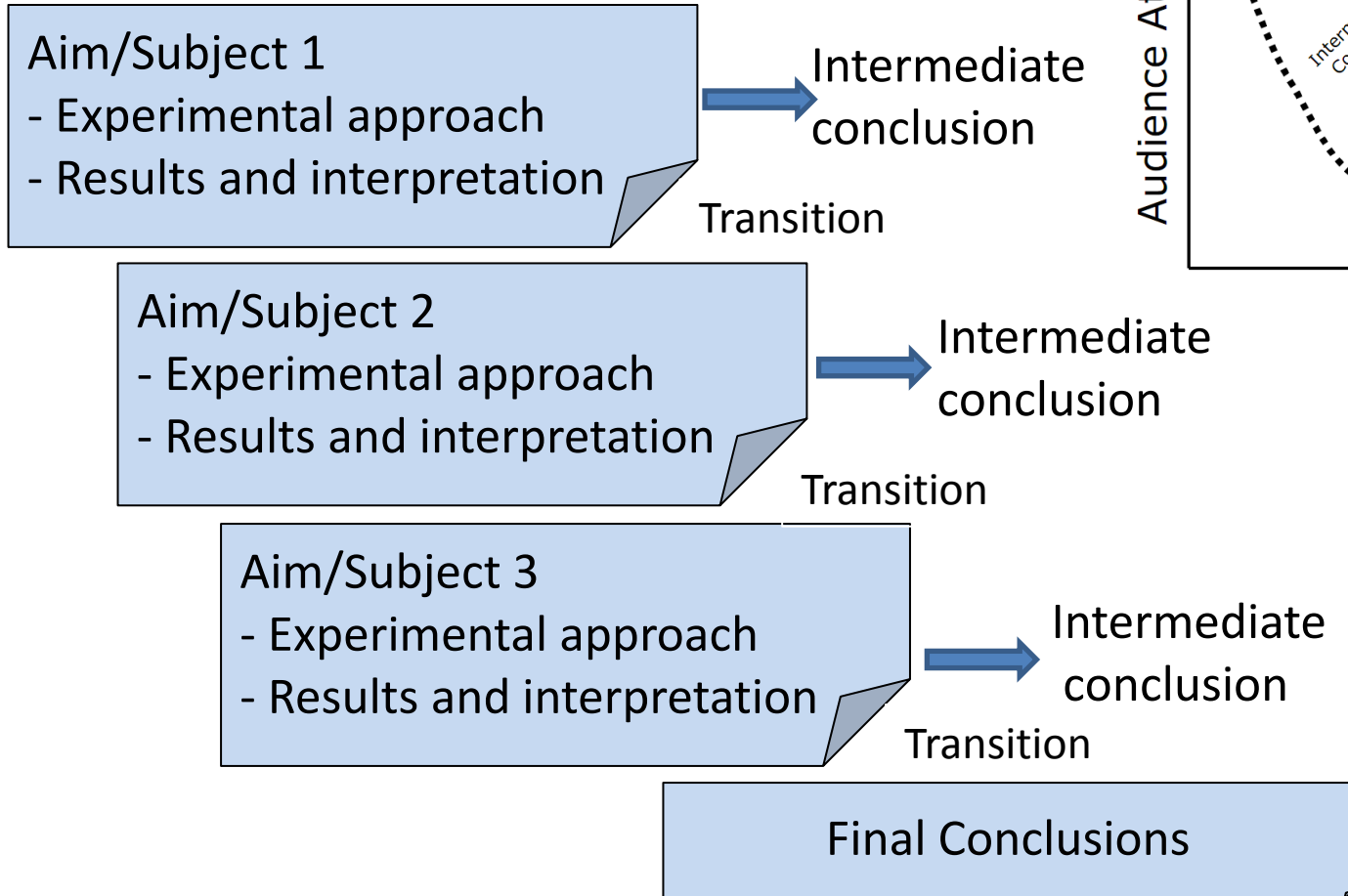
- **Opening and Introduction**

- Greet the audience and introduce yourself
- Give the big picture
- Introduce the take home message

- **Body**

- Logical not chronological order
- Make a transition between the introduction and the body

Giving the Presentation



Giving the Presentation

- Conclude your presentation
 - Come back to the big picture and summarize the significance of your work in that context
 - Have only a few concluding statements
 - When possible, create a summary cartoon with major findings
- Think carefully about your final words and how to finish your presentation strongly
 - Open up new perspective, describe future work, potential implications

Questions and Answers

- Make sure you understand the question
- Keep your answers short and to the point
- You can repeat the question
 - This gives you time to think
 - The rest of the audience may not have heard the question
 - Also if you heard the question incorrectly, it presents an opportunity for clarification

During the Presentation

- Stand where the slides can be seen
- Have a positive body language:
 - Speak freely and look directly at audience
 - Be animated in your voice
 - Be active in your gestures
- Use the active voice when describing what you did
- Be enthusiastic
- Don't rush
- Conclude on time

The Don'ts

- Read a talk
- Move through the slides very fast
- Move back through slides with the animation in the presentation mode
- Get lost in details
- Apologize or make comments about yourself
- Overuse or play with the laser pointer
- Make distracting sounds
- Forget acknowledgments

Polish The Presentation

Examples

Slides and Design

- Limit your text per slide
 - Use 4-7 bullets per page
 - Avoid writing out long and complete sentences on slides
 - Don't animate when you don't need to
 - Avoid long lists
- Size, Font, Color **Matter**
 - Use large letters (> 18 points)
 - Chose a font which is good to read
 - Chose colors to maximize contrast
- Be thoughtful with background and design
- Use equations wisely
- Average not more than 1 slide per minute

POLISH THE PRESENTATION

- Limit your text per slide
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 - Avoid long lists
- Size, Font, Color
 - use large font size (> 18 points)
 - use Arial, Calibri or fonts easy to read
 - chose colors to maximize contrast

All Capital Letters

Different Fonts

Font size to small

A lot of white space on the slide

Polish the Presentation

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Polish the Presentation

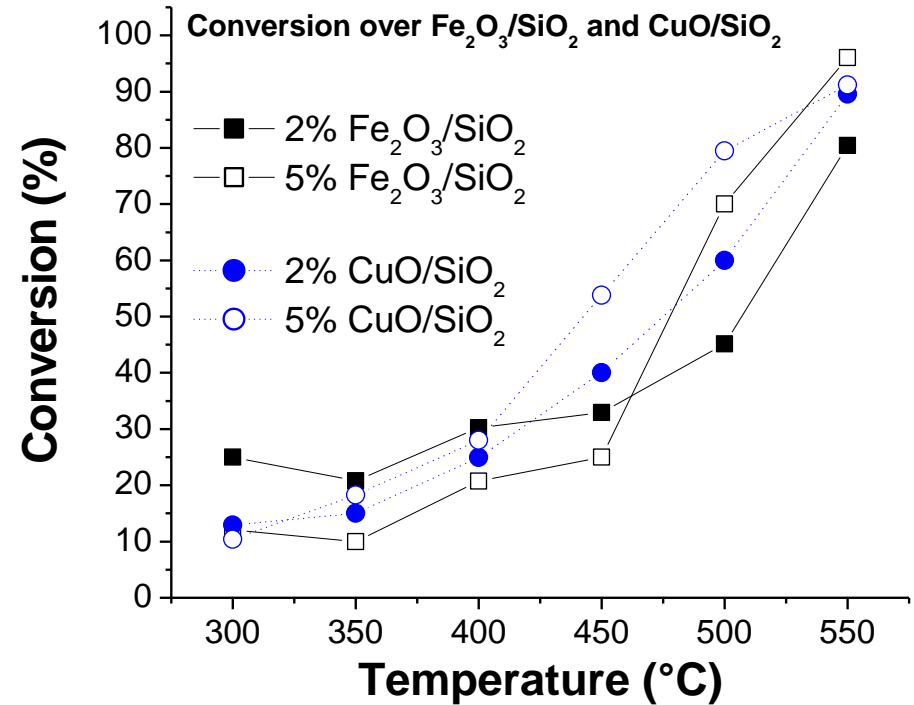
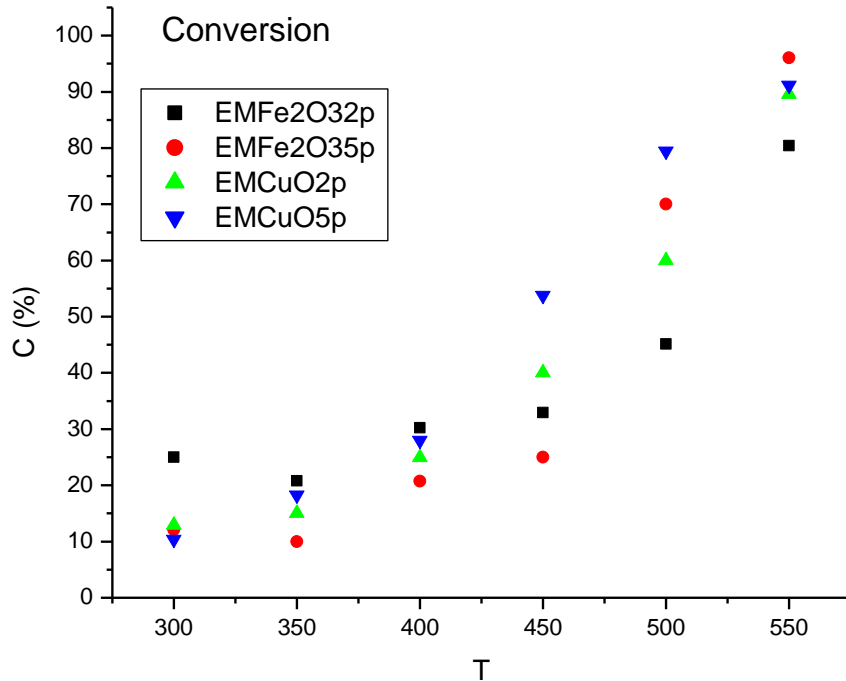
- ▣ Limit your text per slide
 - Use 3-7 bullets per page
 - Avoid writing out long and complete sentences on slides
 - Don't animate when you don't need to
 - Avoid long lists

- ▣ Size, Font, Color
 - use large font size (> 18 points)
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 - chose colors to maximize contrast

“A picture is worth a thousand words”

- Insert photo in the presentation, don't copy and paste it
- Borrow from published work: save the picture from the .html file, not from .pdf
 - For the ACS publications you can download the picture to MS Power Point
- Size the picture using the “size and position” or “format” options
- Label the axes
- Put a legend to each diagram

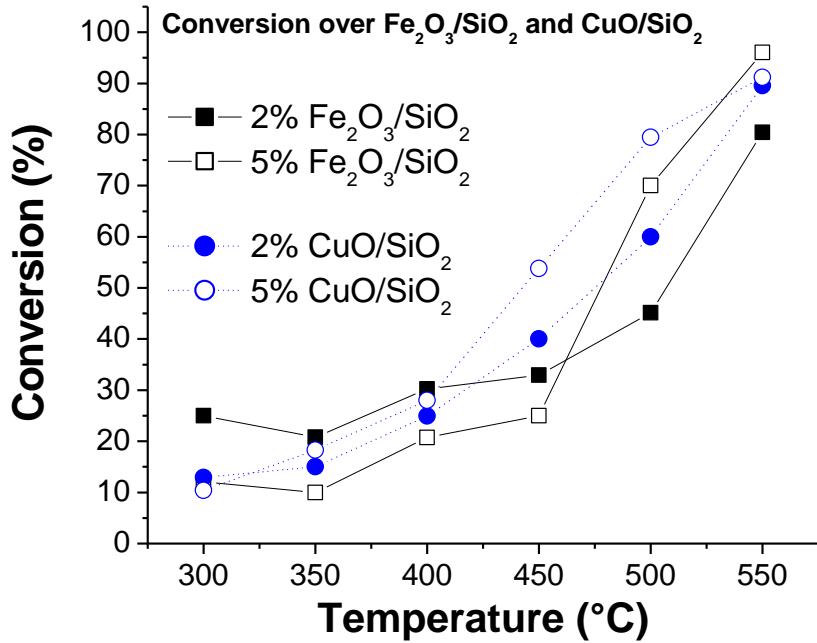
Graphs



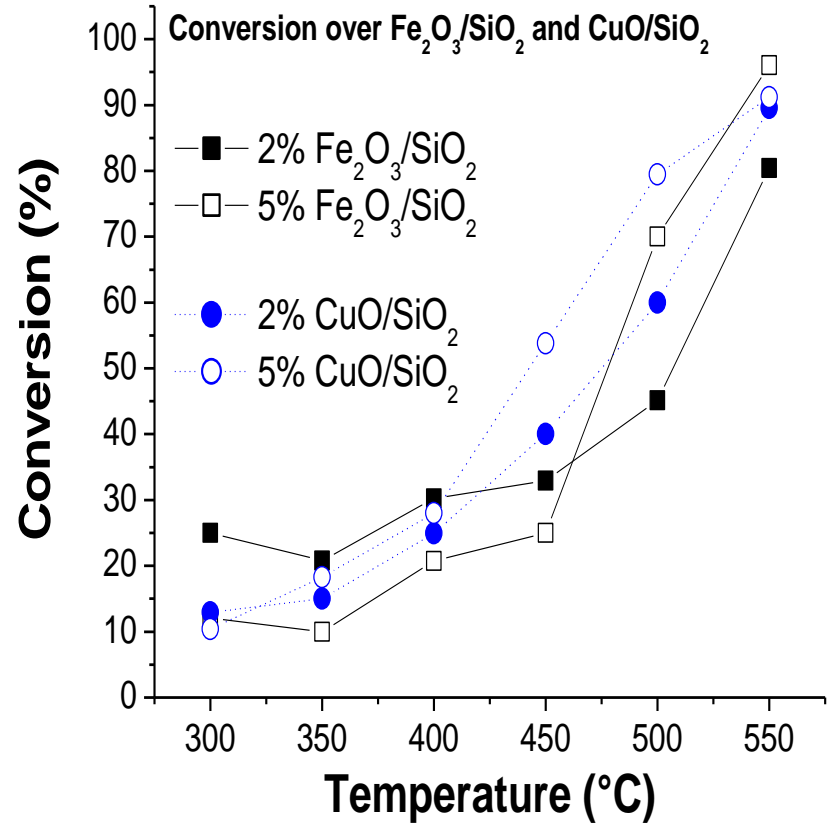
A good figure:

- is easy to read
- explains itself
- contains only relevant information
- does not contain difficult codes

Graphs



sized by using “size and position”

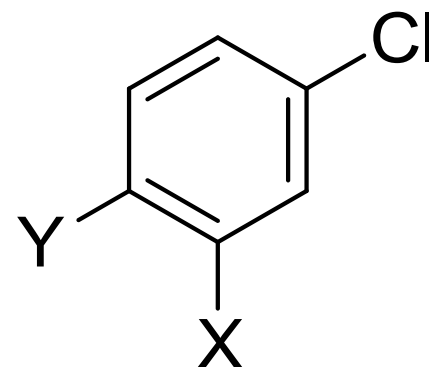
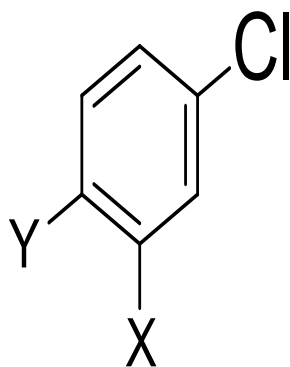
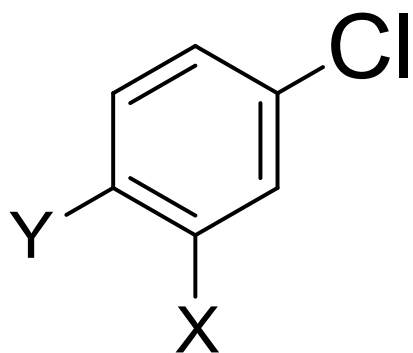


sized by stretching it

Chemical Structures

- Use the ACS Document 1996 in the ChemBioDraw program
- Copy and paste the graphics into the presentation
- Sized by using the “Format Object” function

Examples:

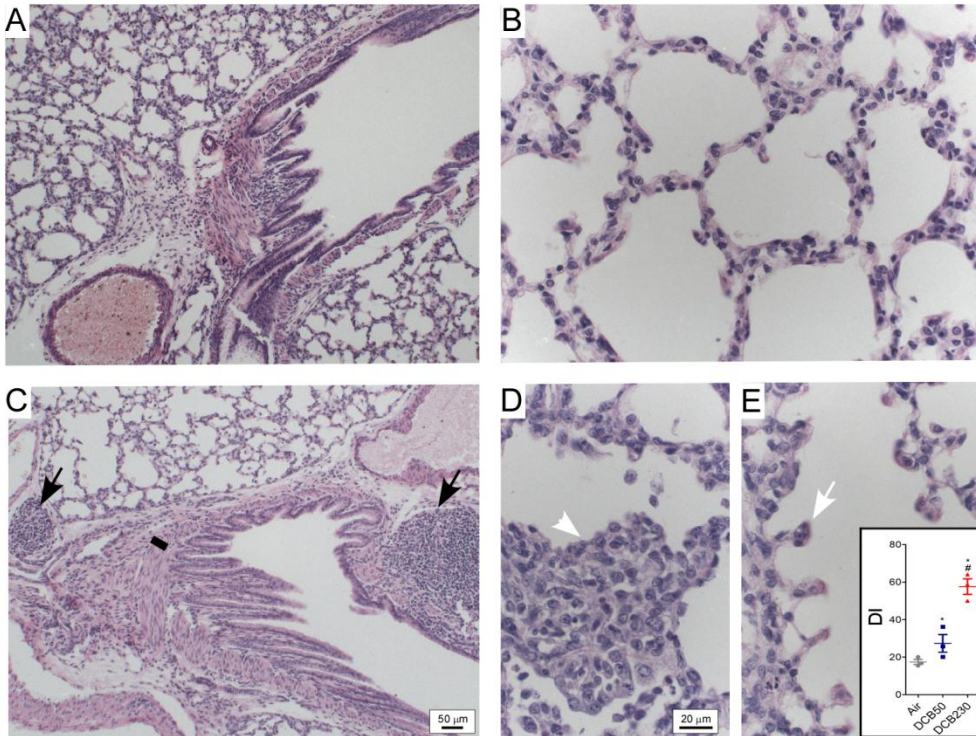


Photos

- Use jpeg, emf, or tiff format?
- Add the scale bare in the micrograph files

The photo's sizes are too small for oral presentation

A lot of text and details



Light micrographs of exposed rat lungs.

Light micrographs of terminal bronchioles (A, C) and alveolar parenchyma (B, D, E) from 15 d old rat lungs following exposure to DCB50, which was visually identical to air (A, B), and DCB230 (C-E).

Black arrows denote significant peribronchiolar BALT; line denotes smooth muscle mass surrounding bronchiole (quantified in Figure 6); white arrow denotes lesions of increased alveolar space (quantified in inset of E); and white arrowhead demonstrates alveolar occlusion.

Bar represents 50 μm (A, C) and 20 μm (B, D, E).

Tables

- Chose a size easy to read
- Graphs should replace tables where possible
- Don't use too many lines and columns

This table is not good for oral presentation, hard to read!

Table 2. Calculated Concentrations of PCP in Molecular and EPFR Form from the Closed System Thermal Heating

temp (°C)	total PCP (molecule and radical) destroyed (molecules/gram)	PCP EPFR formed (spins/gram)	PCP molecule destroyed (molecules/gram)	% PCP converted to EPFR
25	$7.29 \times 10^{18} \pm 7.43 \times 10^{17}$	$1.18 \times 10^{18} \pm 2.13 \times 10^{17}$	$6.11 \times 10^{18} \pm 7.37 \times 10^{17}$	16.19 ± 3.36
30	$9.27 \times 10^{18} \pm 7.12 \times 10^{17}$	$1.20 \times 10^{18} \pm 1.71 \times 10^{17}$	$8.07 \times 10^{18} \pm 7.32 \times 10^{17}$	12.95 ± 2.10
50	$1.01 \times 10^{19} \pm 6.85 \times 10^{17}$	$6.39 \times 10^{18} \pm 2.62 \times 10^{17}$	$3.66 \times 10^{18} \pm 7.33 \times 10^{17}$	63.60 ± 5.06
75	$1.04 \times 10^{19} \pm 7.04 \times 10^{17}$	$8.49 \times 10^{18} \pm 3.38 \times 10^{17}$	$1.93 \times 10^{18} \pm 7.81 \times 10^{17}$	81.48 ± 6.39
100	$1.16 \times 10^{19} \pm 6.85 \times 10^{17}$	$6.75 \times 10^{18} \pm 2.13 \times 10^{17}$	$4.85 \times 10^{18} \pm 7.17 \times 10^{17}$	58.16 ± 3.89
150	$1.20 \times 10^{19} \pm 7.03 \times 10^{17}$	$4.17 \times 10^{18} \pm 3.87 \times 10^{17}$	$7.85 \times 10^{18} \pm 8.02 \times 10^{17}$	34.68 ± 3.81
200	$1.24 \times 10^{19} \pm 7.01 \times 10^{17}$	$1.33 \times 10^{18} \pm 2.51 \times 10^{17}$	$1.11 \times 10^{19} \pm 7.45 \times 10^{17}$	10.72 ± 2.12
250	$1.23 \times 10^{19} \pm 6.82 \times 10^{17}$	$4.07 \times 10^{17} \pm 2.15 \times 10^{17}$	$1.19 \times 10^{19} \pm 7.15 \times 10^{17}$	3.31 ± 1.76
300	$1.19 \times 10^{19} \pm 7.06 \times 10^{17}$	$4.37 \times 10^{17} \pm 1.77 \times 10^{17}$	$1.14 \times 10^{19} \pm 7.28 \times 10^{17}$	3.68 ± 1.51

Resources

- Micki Holyday. *“Secrets of Power Presentations : Overcome Your Fear of Public Speaking, Build Rapport and Credibility With Your Audience, Prepare and Deliver a Dynamic Presentation”*, Career Press, 2000
- Hans Niemantsverdriet *“How to give successful oral and poster presentations”*
<http://www.efcats.org/Give+Successful+Presentations.html>
- Mark Schoeberl and Brian Toon, *“Ten secrets to giving a good scientific talk”*
http://www.cgd.ucar.edu/cms/agu/scientific_talk.html
- Science: Becoming the Messenger, NSF workshop, November 17, 2011