
Talking Science

Designing and delivering
successful oral presentations

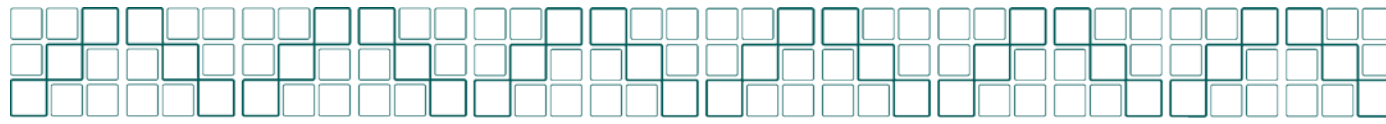
Shawn Mullen, PhD
Deputy Director,
Office of Postdoctoral Services
NIH/OD/OIR/OITE





Scientific objectives of a presentation

- Effectively communicate your science
- Demonstrate your expertise in your scientific area
- Generate interest in your research
- Encourage potential collaborative opportunities



Professional objectives of a presentation

- Demonstrate your ability to communicate complex science to different types of audiences
- Establish your reputation as a scientist who understands the details as well as the big picture
- Promote career building & networking opportunities
- Get invited to give more talks



Many different types of science talks

- Lab meeting presentations
- Data clubs or interest groups presentation
- Meeting or conference
- Academic job talk
- Chalk talks
- Industry/private sector job talks
- General audience or Public talks

- ***“One talk does not fit all!”***



Factors in creating an effective talk

- *Knowing your audience*
- *Telling an interesting story*
- Defining take home message(s)
- Presenting good slides with clear meaningful content
- Having an engaging and confident delivery
- Mastering the Question and Answer period
- Staying within the time limit

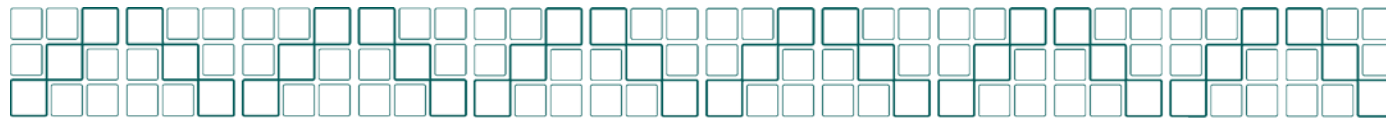


Scientific talks are stories

Beginning

Middle

End

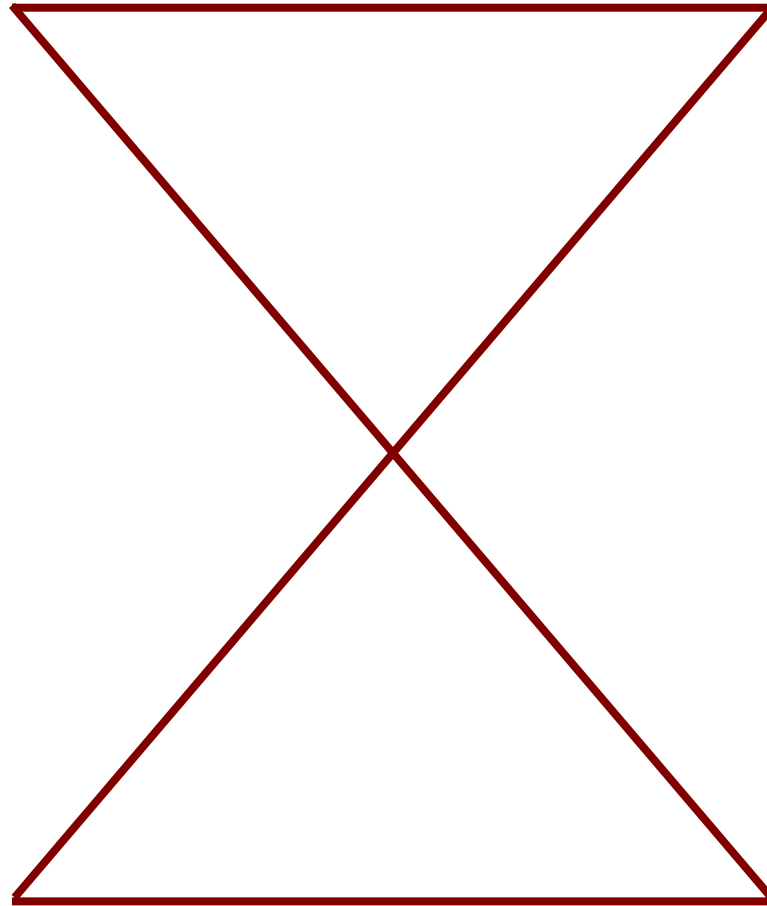


Science stories have a unique structure

Beginning

Middle

End





Science talks have specific components

Beginning

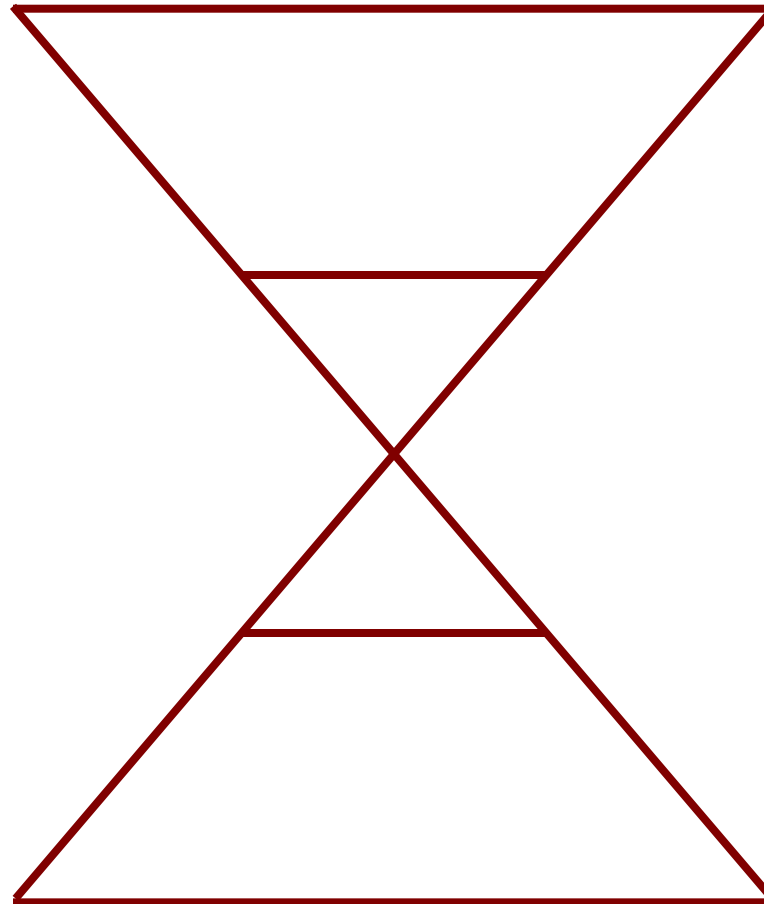
**Introduction
&
Defining the
problem**

Middle

**Methods
&
Results**

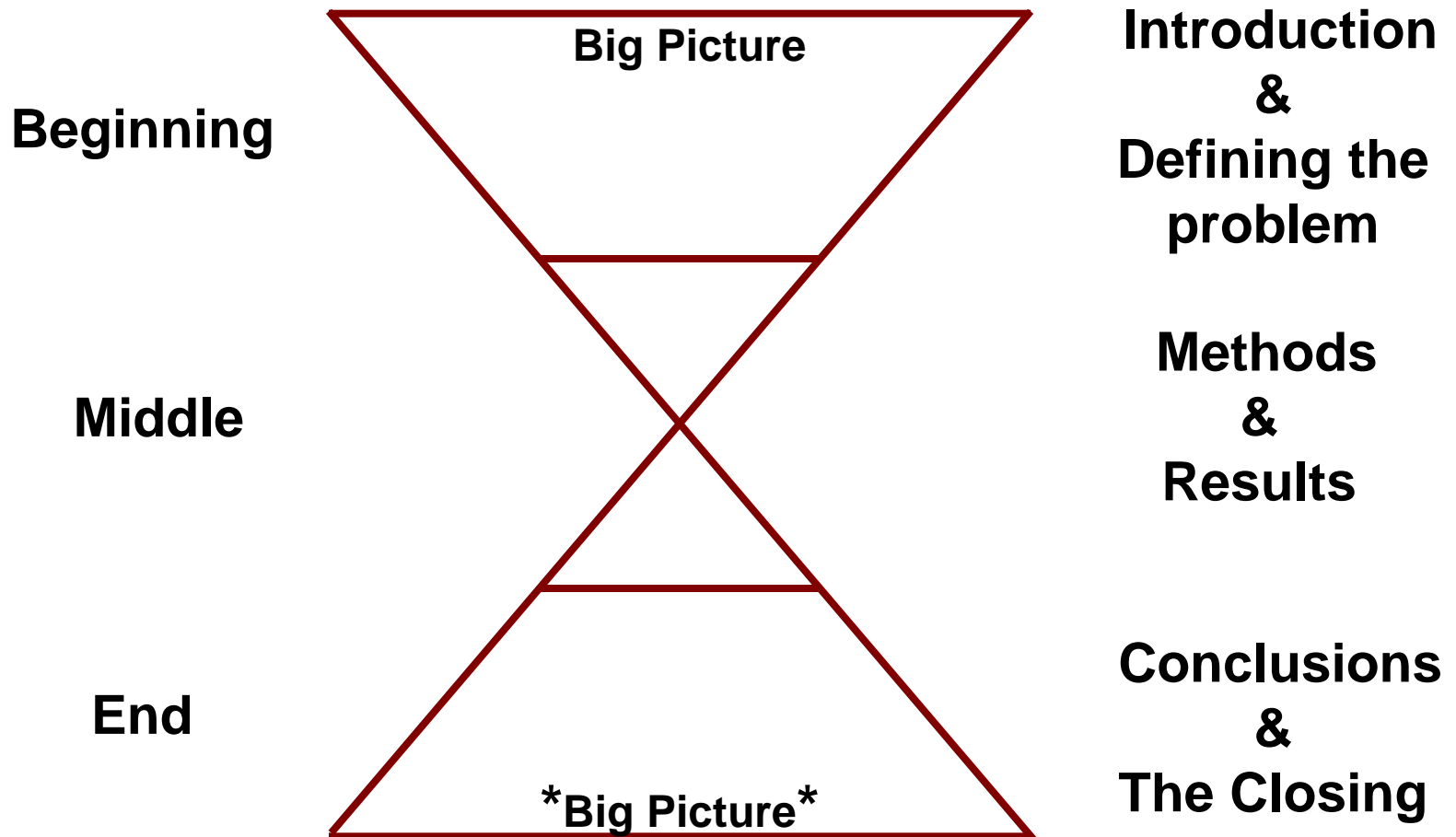
End

**Conclusions
&
The Closing**





Good science stories come full circle





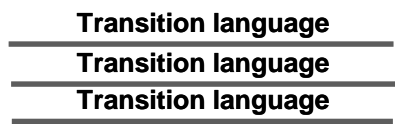
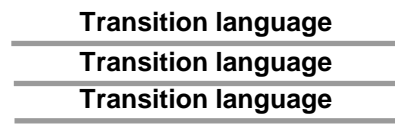
Creating the story

- Start in the middle
 - Just enough key results to tell the story
 - Content designed for the talk
- Work your way outward
 - Methods – simplified, graphical, broad
 - Hypothesis/Problem – Clear and Concise
- Close up the ends
 - Introduction
 - Conclusions
 - Closing
 - How have you changed the story?



Mapping your talk

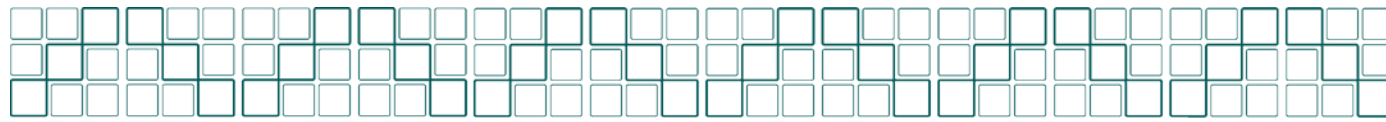
- Helps to fully develop slides before and after
- Clarify what major points/take home message you want to make in each section
- Bridges slides to one another
- Maintain overall flow





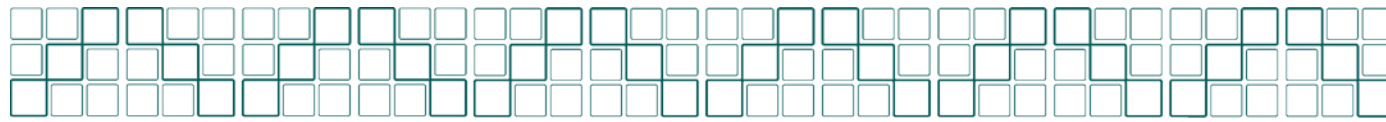
Good slides posses...

- A title that is a declarative statement
 - Titles are the take home message
- Figures that are large, clean, and crisp
 - Qualitative and quantitative data
- Minimum amount of text
 - It's called a "Talk" and not a "Read" for a reason
- Labels and text that are clearly readable
- Aids that help identify important information
- Sufficient white space
 - Avoid too busy or overwhelming content



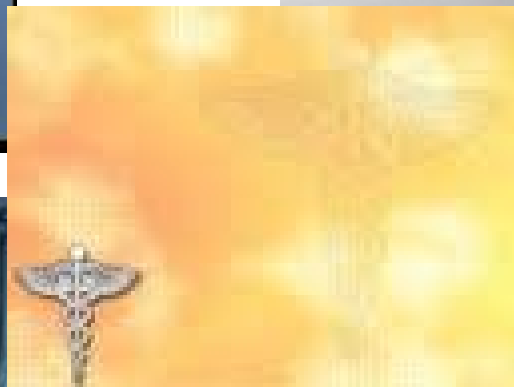
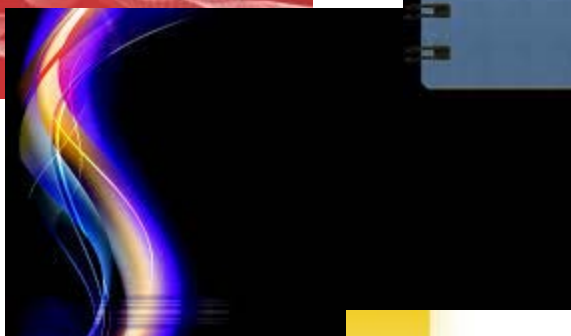
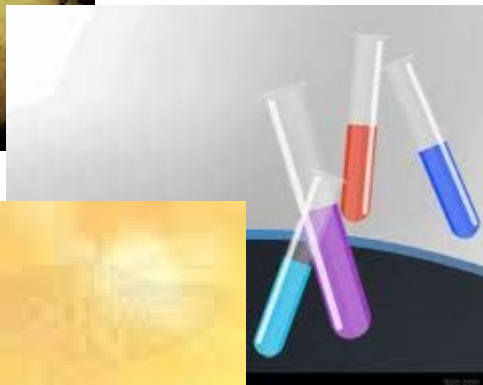
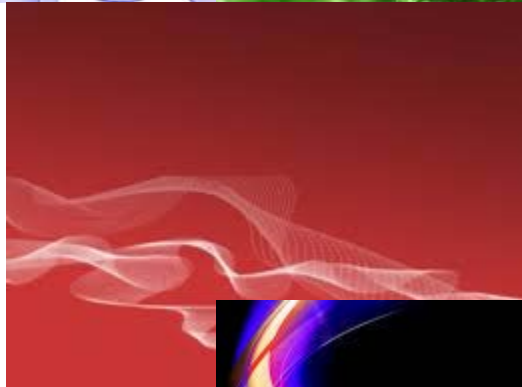
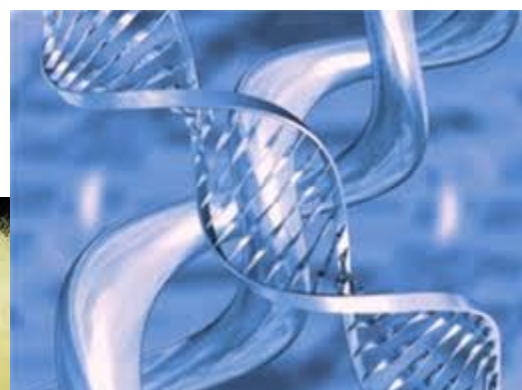
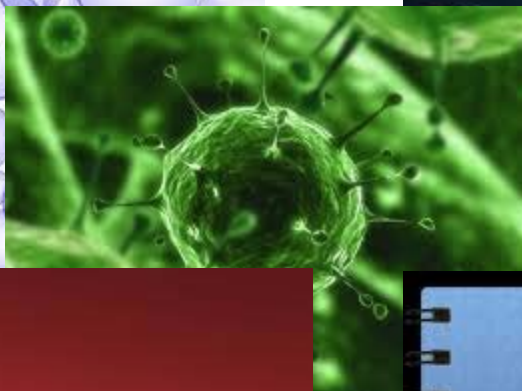
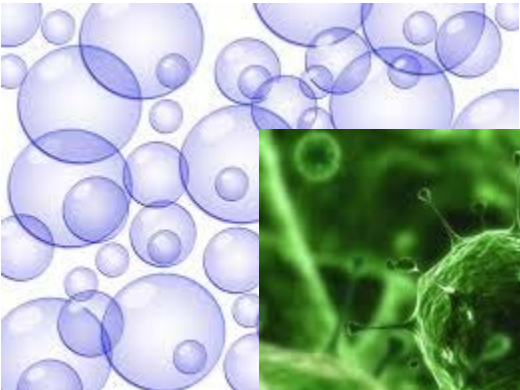
Optimize your slides

- **Consistent formatting appearance**
 - From slide to slide
 - Titles and text
- **Backgrounds**
 - White, black, or dark blue
 - Contrasting text
- **High picture/text ratio**
- **Bulleted information**
 - Succinct chunks of Key “pieces” of information
- **Key results**
 - Choosing the best
 - Reformatting it for the audience
- **Effectively emphasize specific information**
 - Laser pointers versus “hardwired” indicators
 - Avoid custom animation distractions



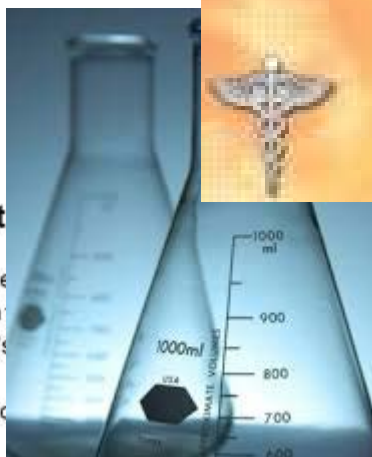
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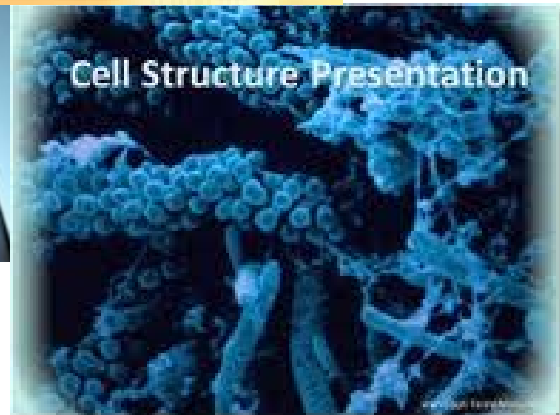


Visualize your text

1. Download this awesome
2. Bring your presentation
3. Capture your audience's
4. Get your point across
5. Pitch your ideas convinc



Cell Structure Presentation





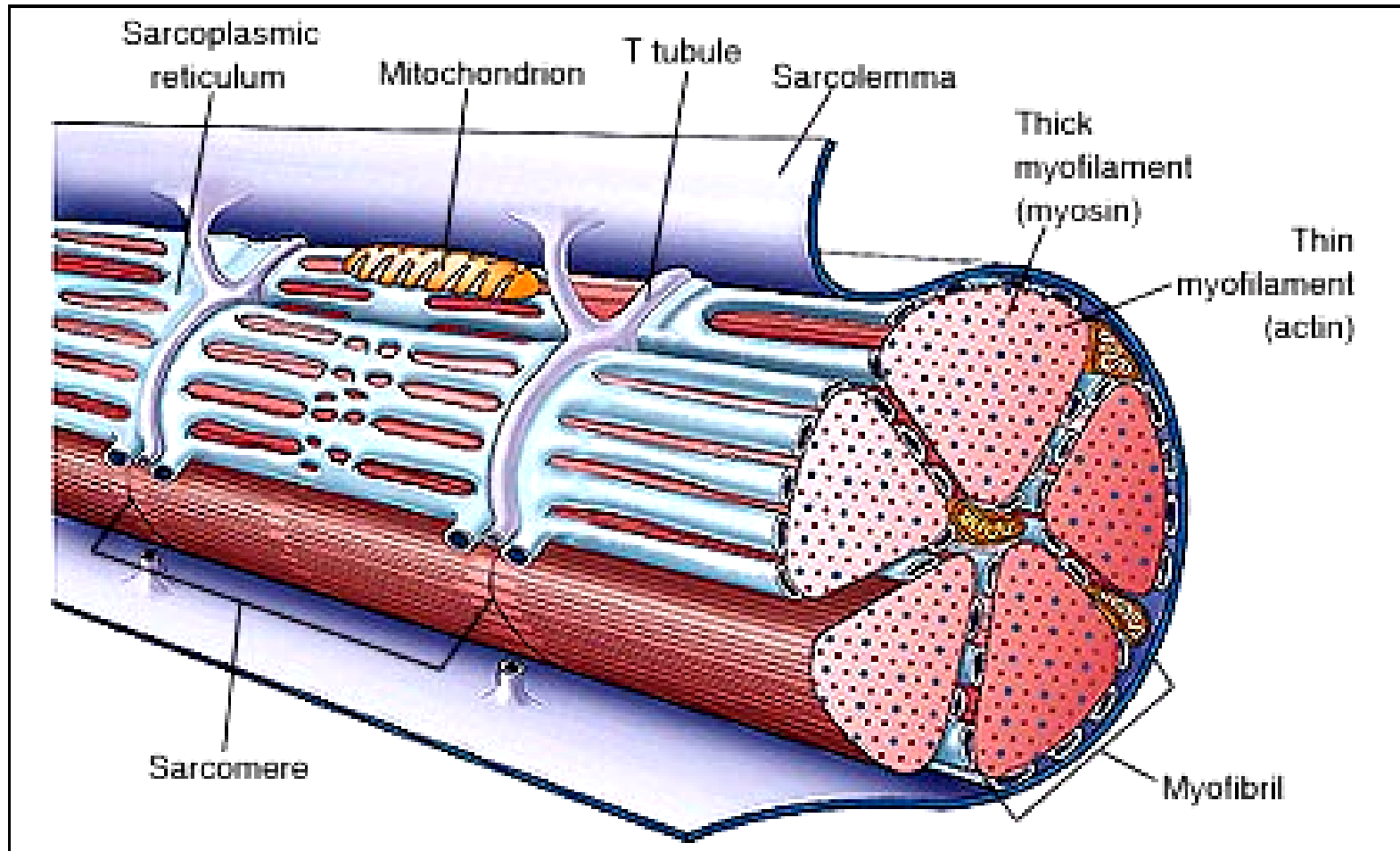
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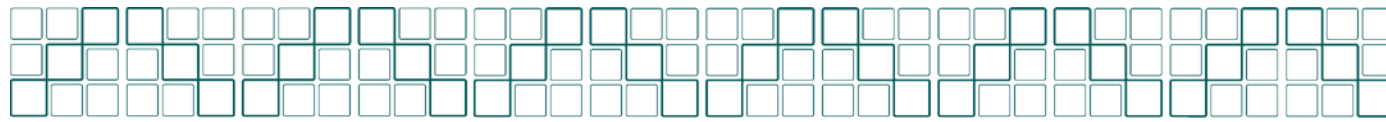
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Background

- A specialized endoplasmic reticulum called the sarcoplasmic reticulum (SR) surrounds each myofibril, following the sarcomeric pattern while maintaining an association with the the t-tubules.
- The SR acts as a calcium storage reservoir for the facilitation of muscle contraction through the release of calcium through the calcium release channel.
- The brain sends an electrical signal along the muscle sheath and down the T-Tubule. This signal initiates calcium release.
- The binding of calcium within the myofilament arrangement allows for binding between the myofilaments resulting in the sliding of the filaments which is known as contraction.
- For relaxation, calcium is removed via the sarcoplasmic reticulum's calcium pump causing the myofilaments to move to their original positions resulting in the relaxation of the muscle

Muscle contraction is facilitated by Ca^{2+}





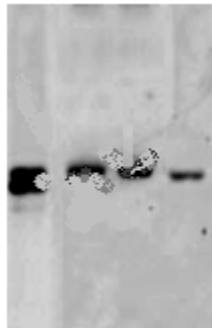
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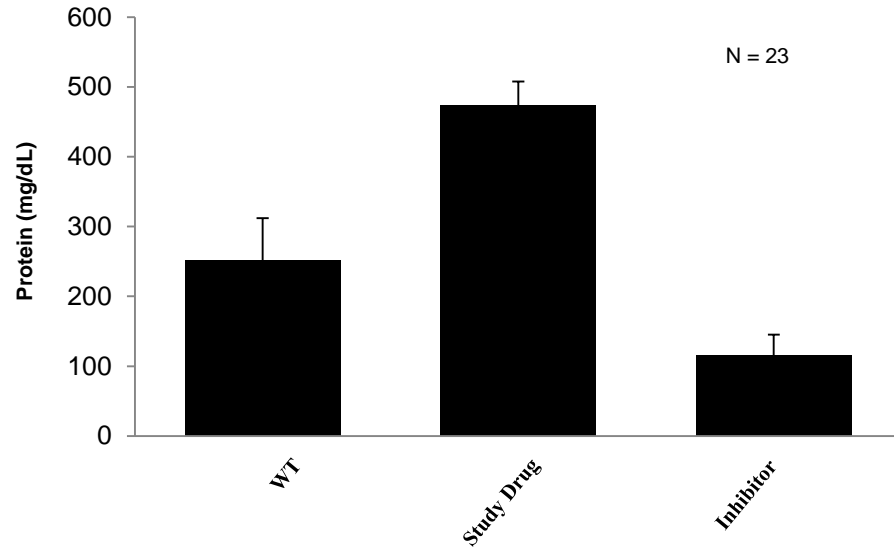
Biochemical Analysis



Trial 1

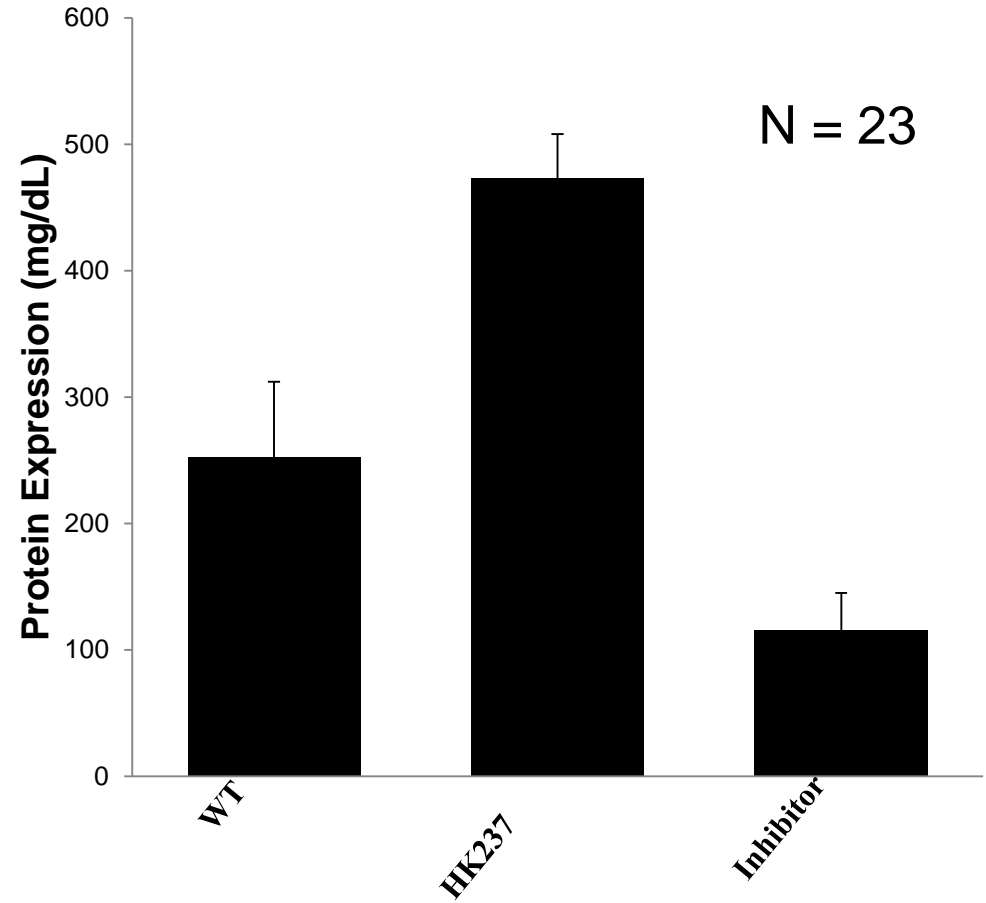
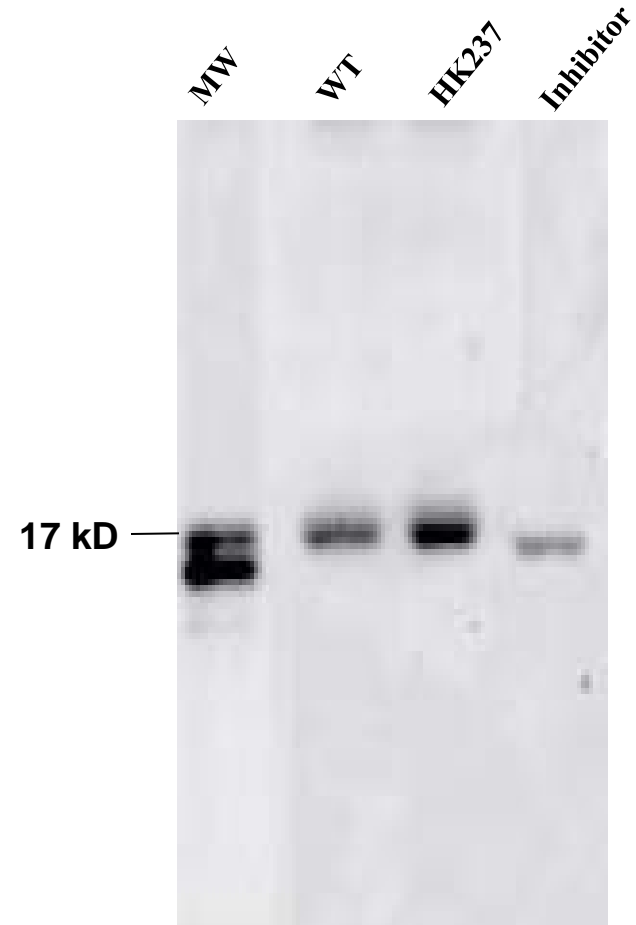


Trial 2



- 50 μ M of study drug with 40 min incubation at 34°C
- Gel electrophoresis
- Western blot analysis
- Study drug increases protein expression as opposed to wild type

HK237 stimulates protein expression

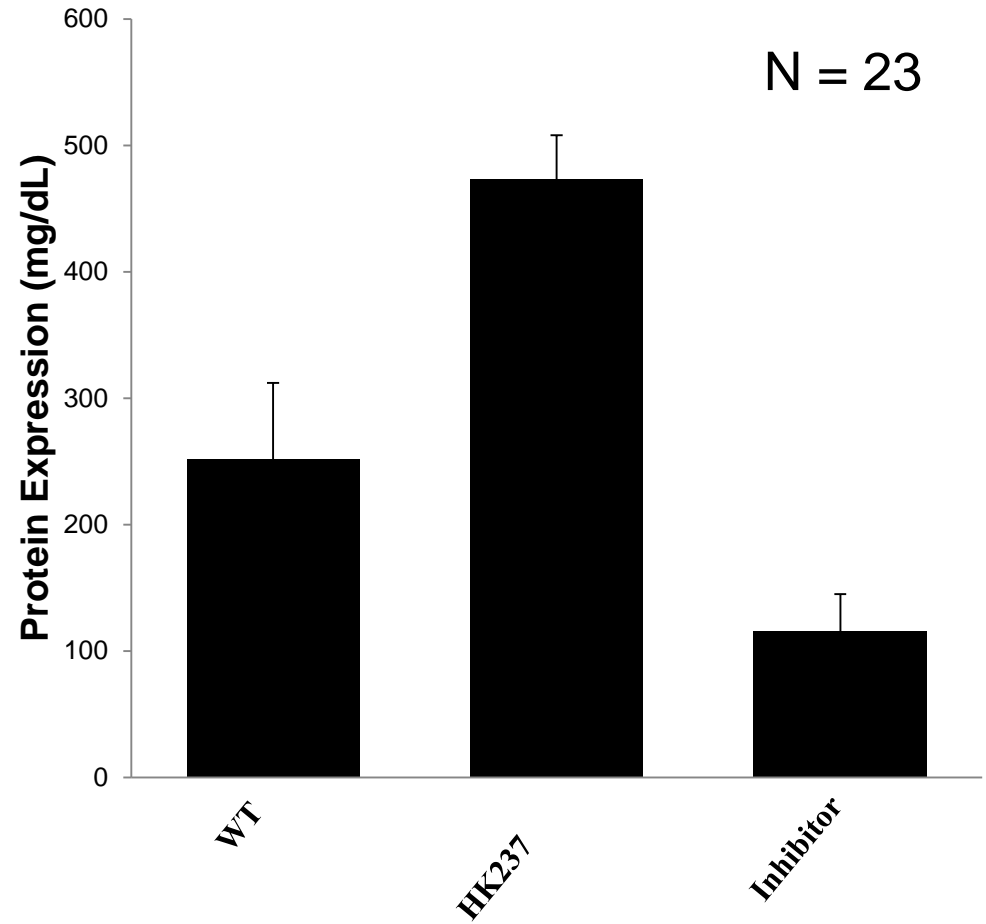




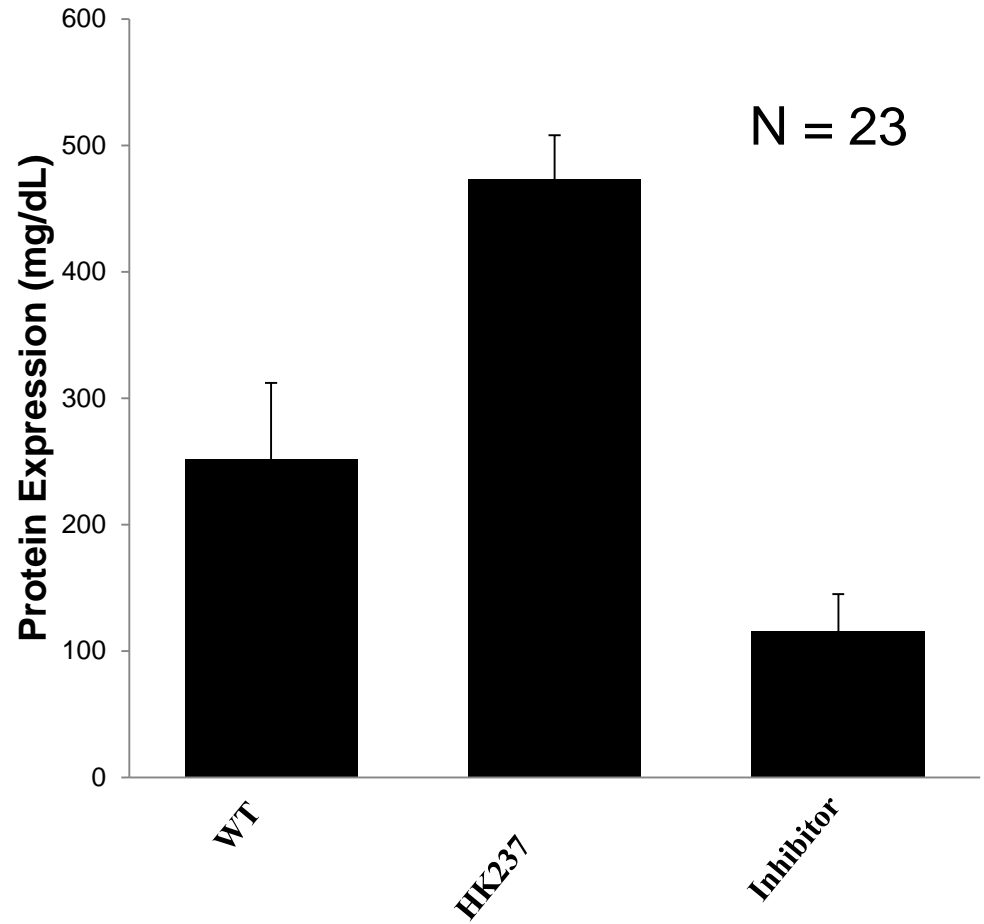
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HK237 stimulates protein expression



HK237 stimulates protein expression





Optimize your slides

- **Consistent formatting appearance**
 - From slide to slide
 - Titles and text
- **Content**
 - “If you aren’t going to talk about it – don’t have it on the slide”
- **Backgrounds**
 - White, black, or dark blue
 - Contrasting text
- **High picture/text ratio**
- **Bulleted information**
 - Succinct chunks of Key “pieces” of information
- **Key results**
 - Only what you need to make the point or tell that particular story
- **Effectively emphasize specific information**
 - Laser pointers versus “hardwired” indicators
 - Avoid custom animation distractions



Elements for a successful delivery

- ***Practice is the key***
 - Close to audience type as possible
- Relax, breath and slow your pace
- Establish a steady audio level
- Use language appropriate for the audience
 - Avoid shorthand, acronyms, jargon
- Choose an optimal position
 - Open space between you and your audience is desirable
- Be engaging and personable
 - Talk to your audience – eye contact
- Be enthusiastic about the material



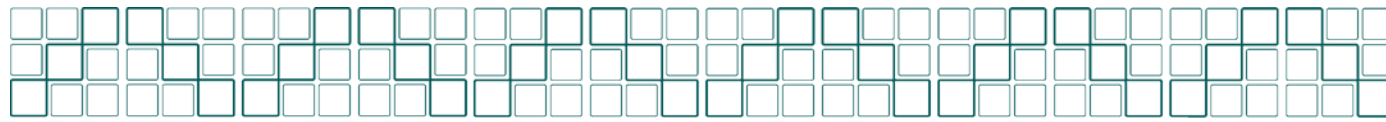
Question and Answers

- Make sure you understand what is being asked
- Repeat the question
- Avoid long digressions
- Steer controversial topics offline
- Not all questions are “good” or easy; Don’t try to answer a question you don’t know
- OK to say “I don’t know”



Final thoughts

- **Keep your audience in mind at all times**
- **Practice early, practice often**
- Don't make last minute changes
- Prepare for the unexpected
- Thank those who need to be thanked – at the beginning of the talk
- Enjoy the moment and the opportunity



Resources

Office of Intramural Training and Education

<http://www.training.nih.gov>

Contact me at

mullensh@mail.nih.gov