Simple Rules for an Effective Research Presentation

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Overview

1. What makes an effective presentation?
2. Organization of content
3. Slide design
4. Oral delivery

What makes an effective presentation?

One that is easy for the audience to **follow** along & remember the **central message**

Design slides for the audience, not yourself

Minimize the amount of mental work your audience has to do

Who is your audience?

- General audience (non-specialized)
- Avoid technical terms if you can or define using in accessible language

Organization of Content

Title Slide

Motivation (background)

Research Question

Methods

Results

Conclusion

Future Directions (if enough time)

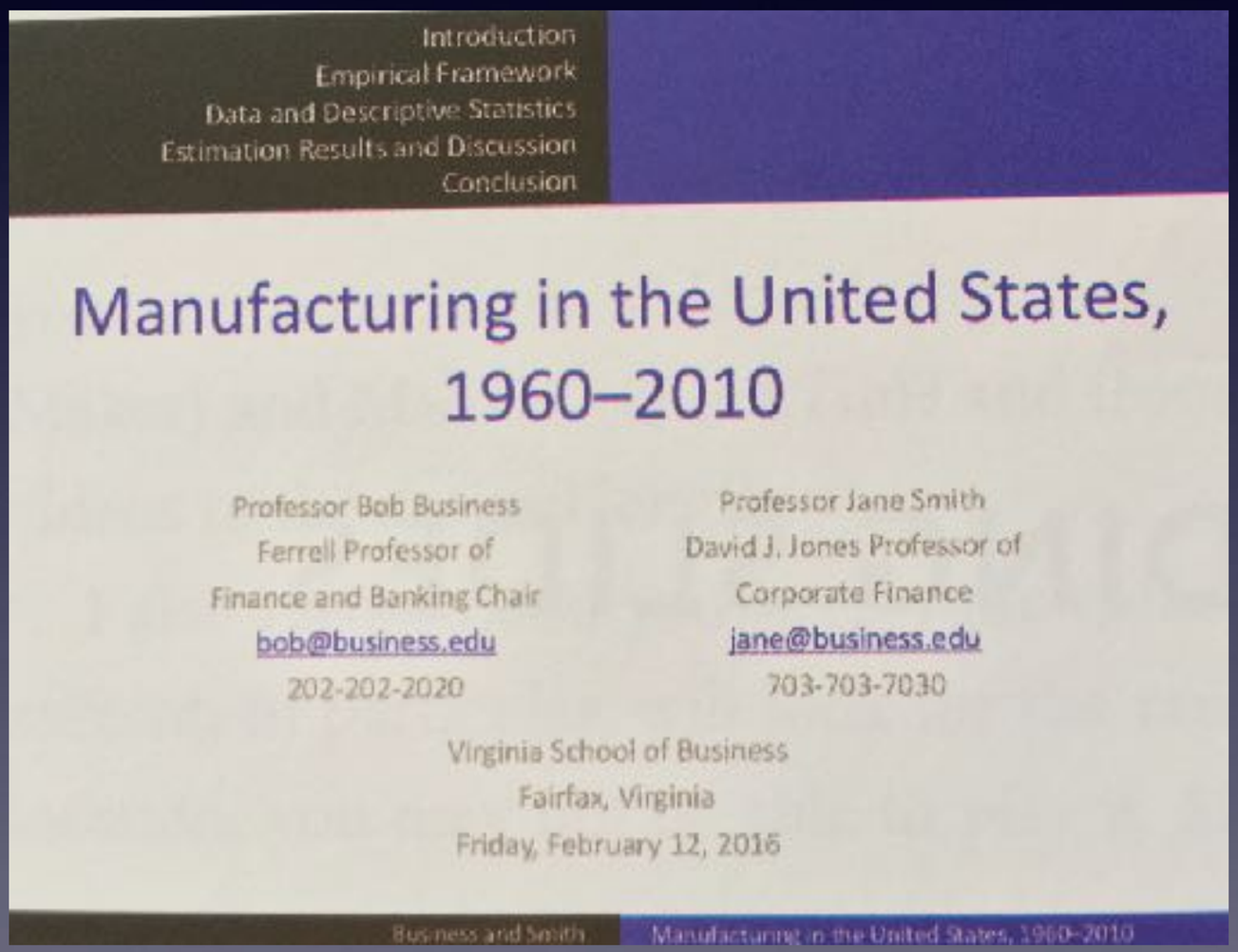
Acknowledgements (if enough time)

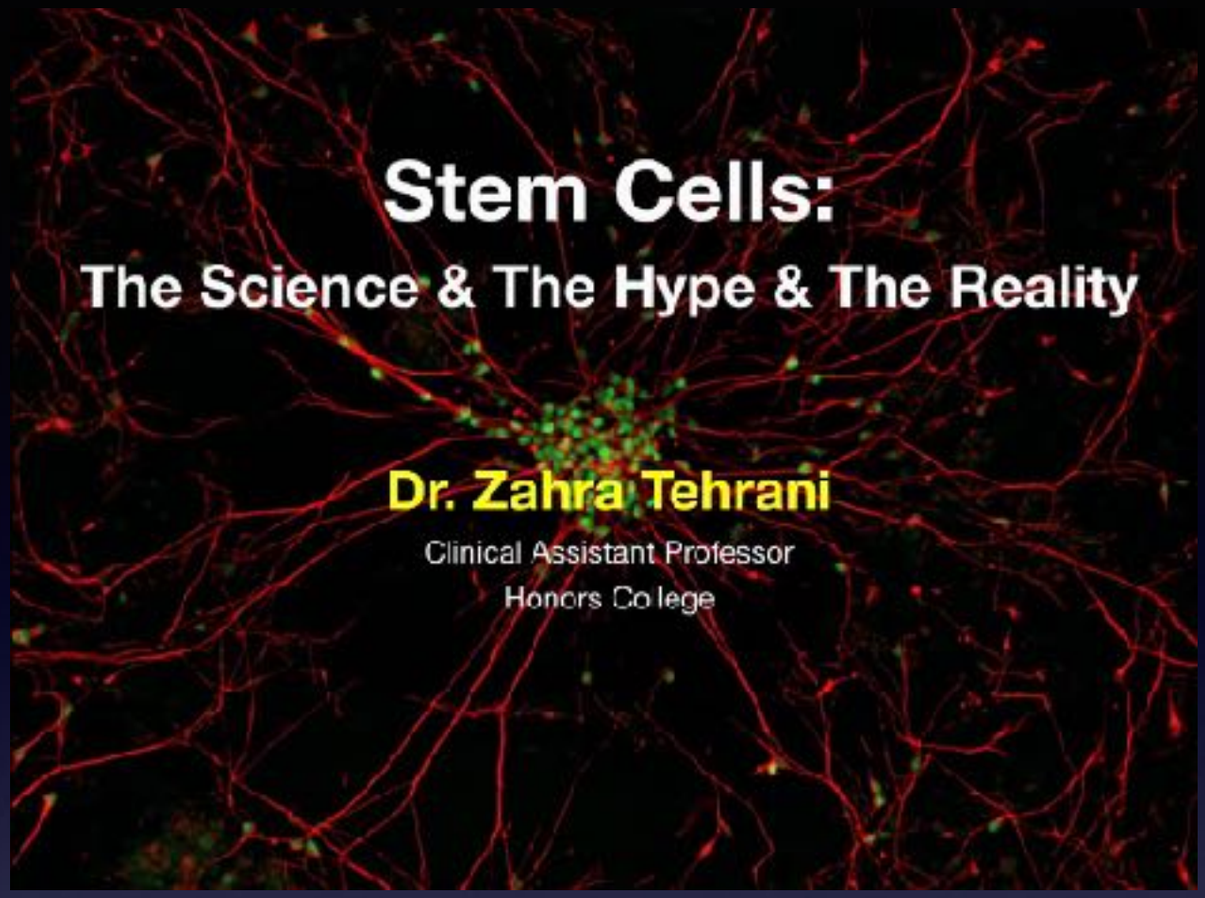
References (not shown)

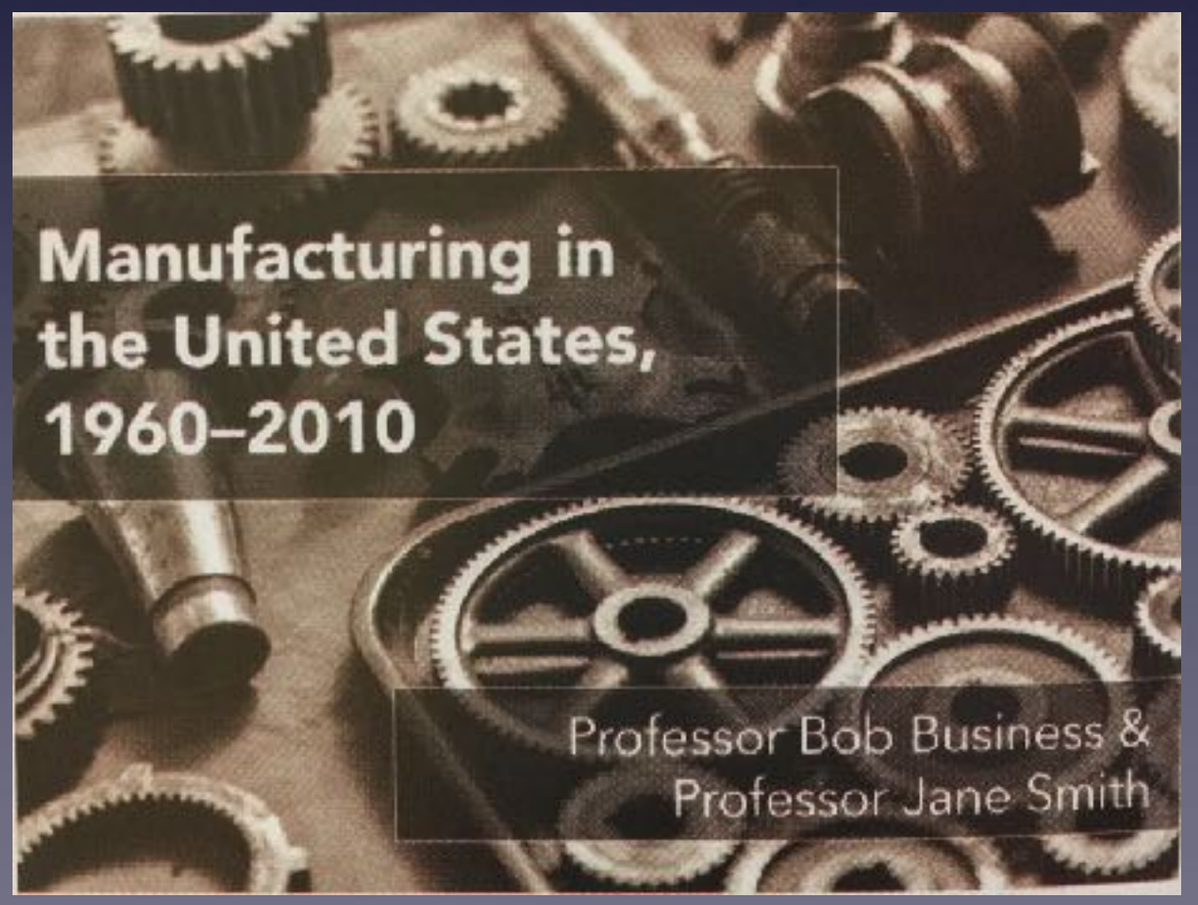
Title Slide

- Title of talk
- Name
- Affiliation
- Email address (not required)

Which title slides are memorable?







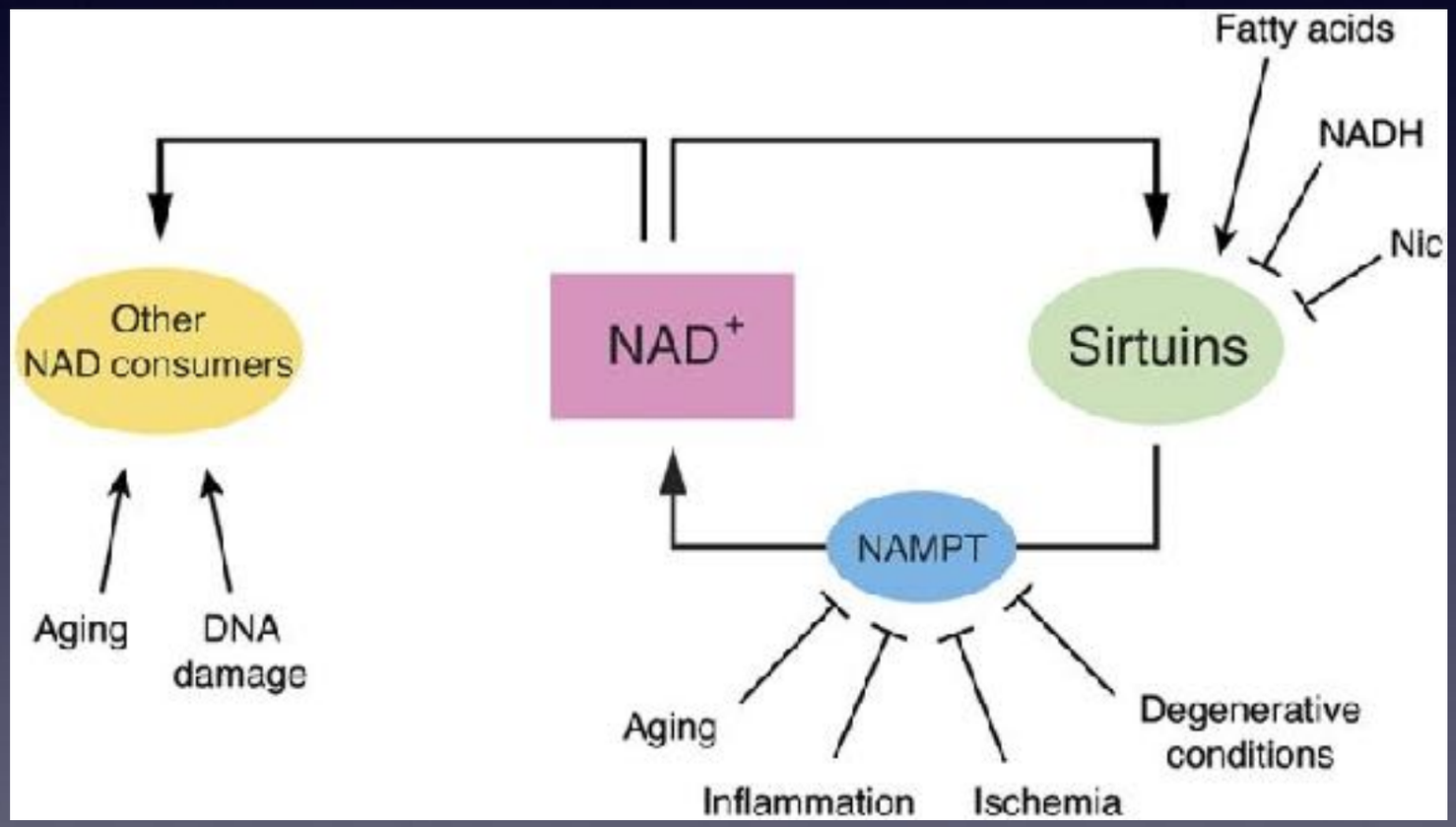
Motivation

Hooks the audience in by setting up the **context** and **purpose** of your study

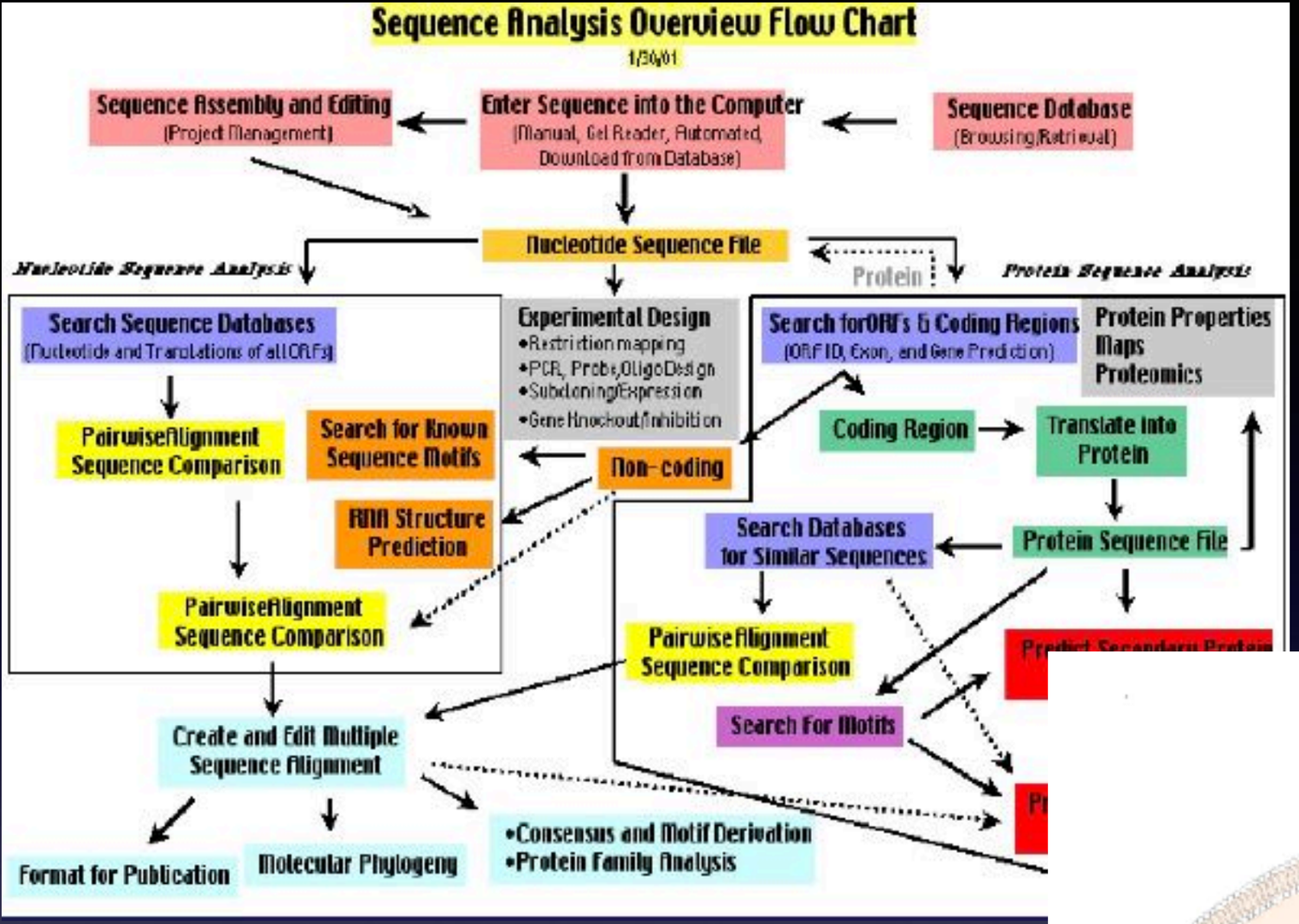
1. What is the problem?
2. Why is it important to solve this problem (big picture)?
3. What was already known before you started your research? (summarize KEY studies previously published)
4. What gap in knowledge still needed investigation?

Regulation of NAD+ & Sirtuins in Aging

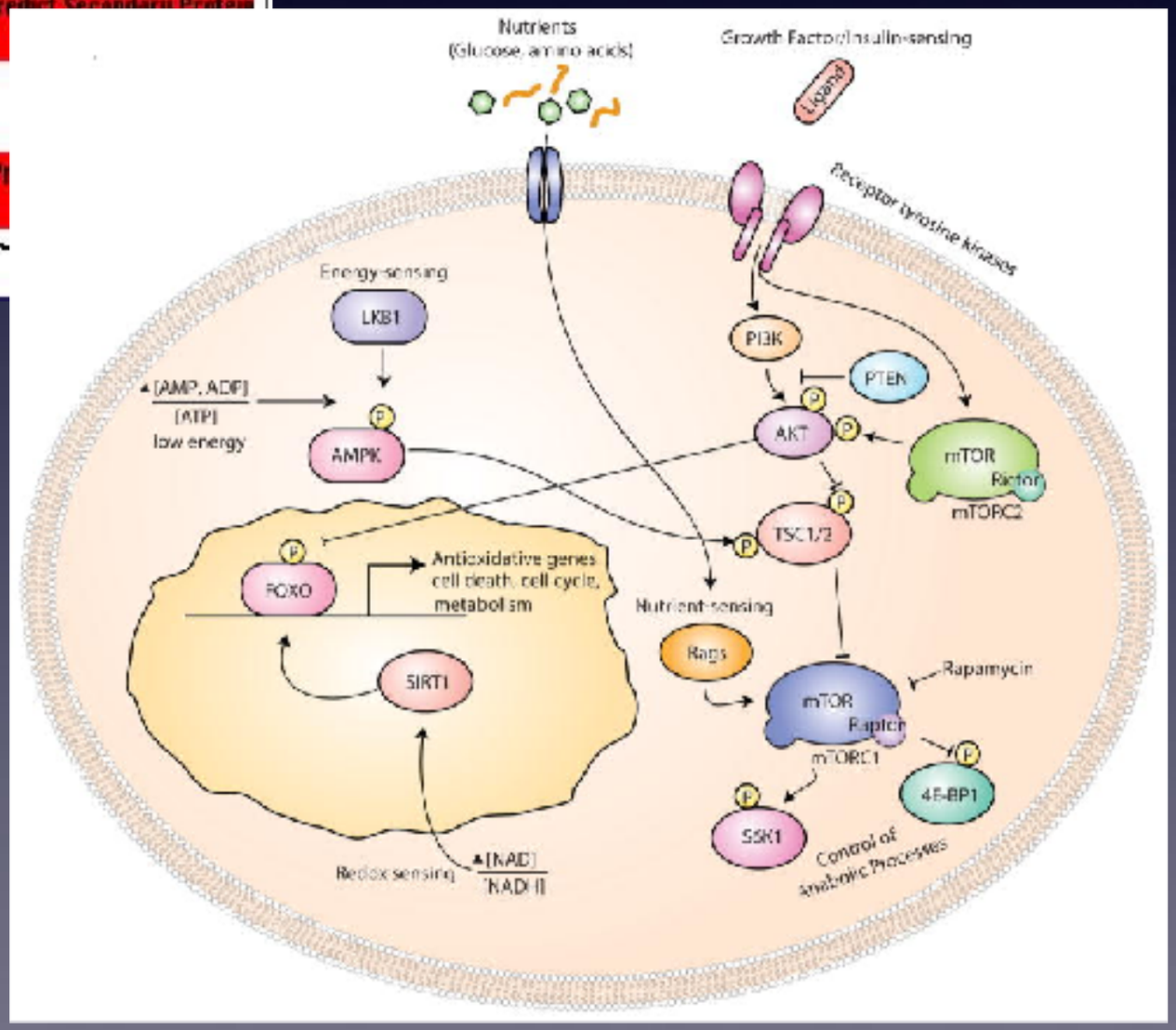
- People learn better from visuals & words than from words alone
- Use schematics to explain processes
- Cite source
- Interact with figure



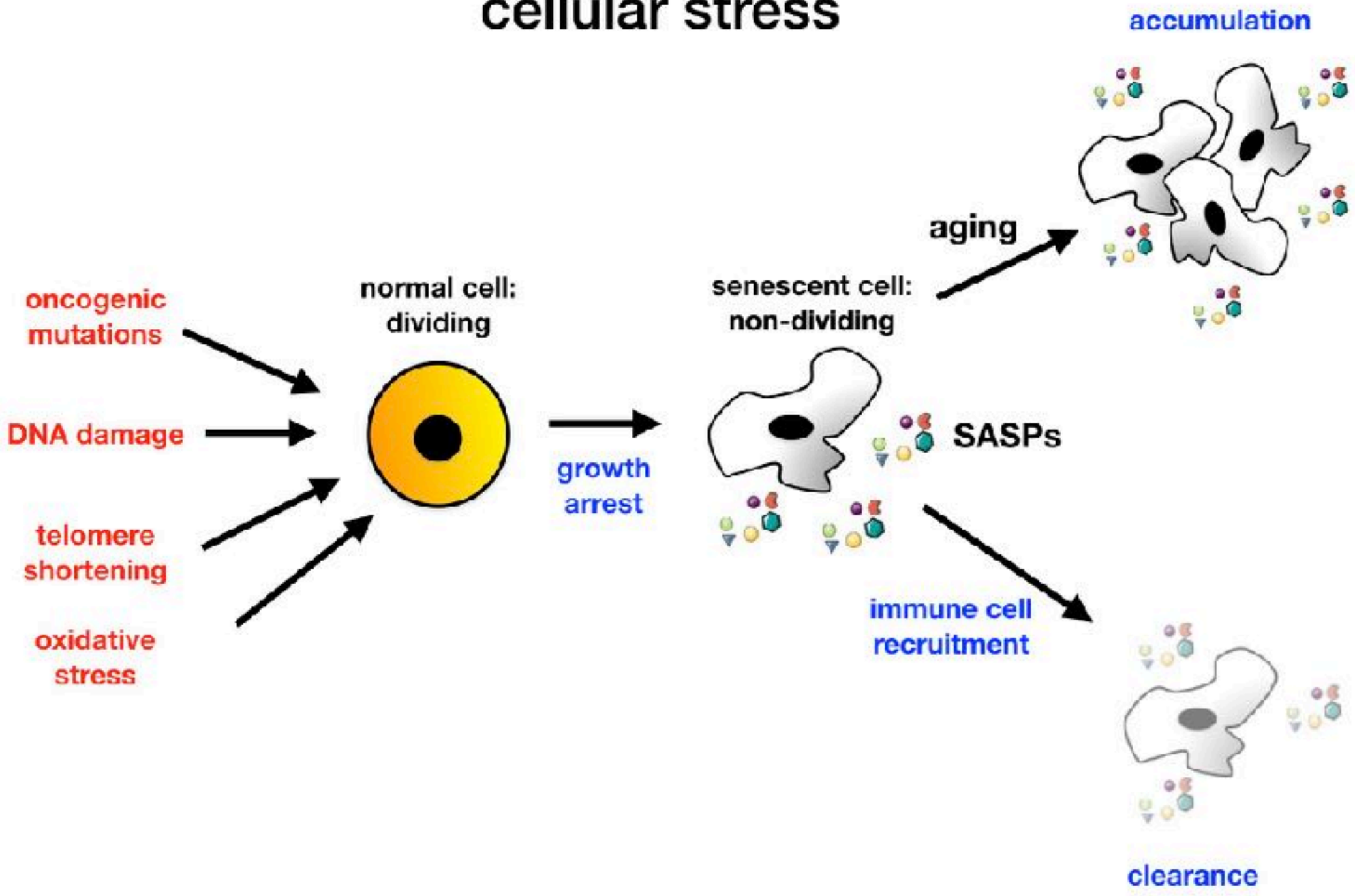
Imai & Guarente, 2016



Don’t include material that you don’t plan to explain



Senescence: growth arrest (retirement) due to cellular stress



If you can’t find a figure online, draw your own

Research Question

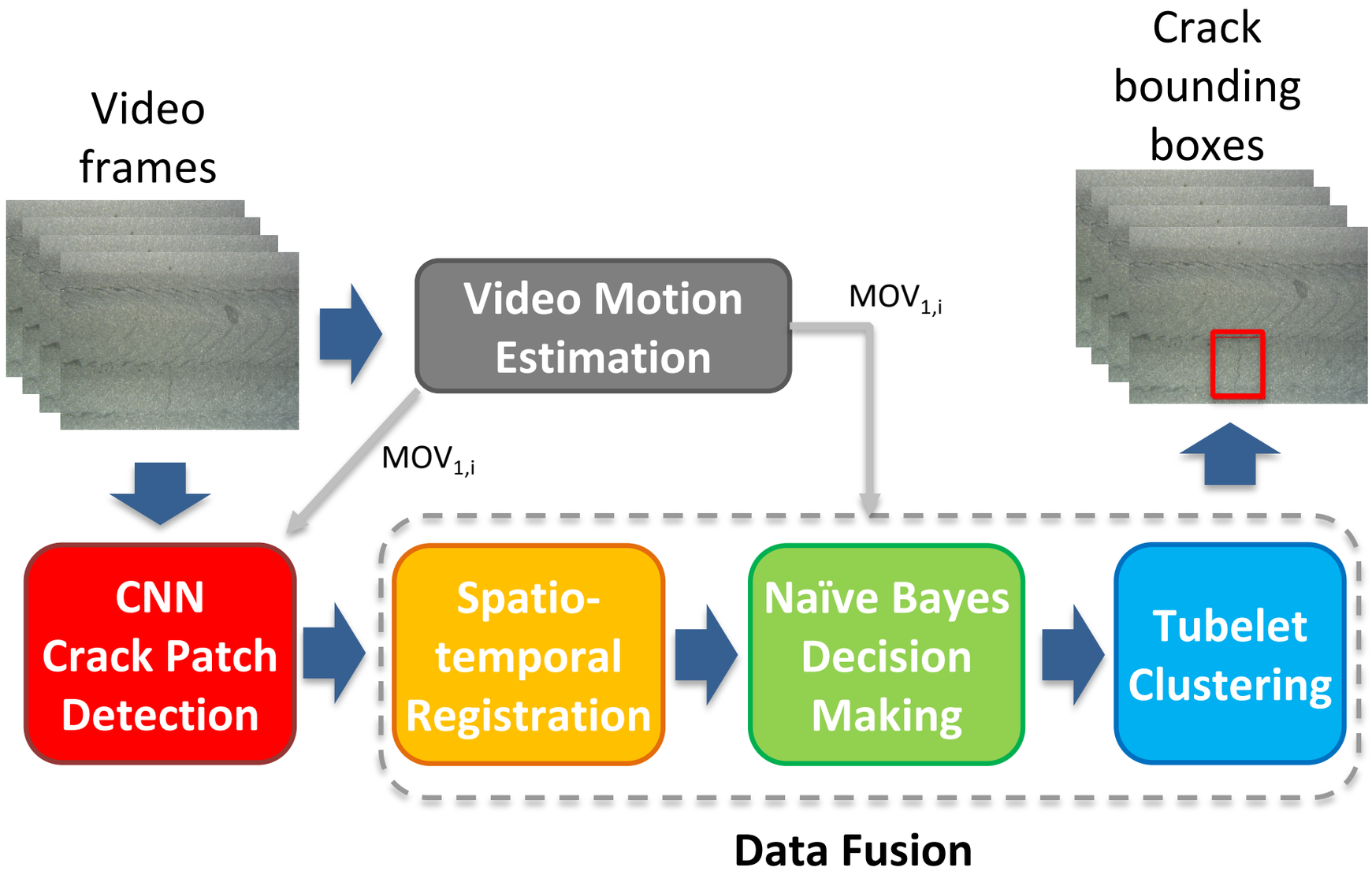
- Have a slide dedicated to only the research question
- Write an actual question!
- Give a preview of the conclusion to maintain audience attention

Methods

- What method(s) did you use and how will it address your research question?
- What experimental organism or human population did you study? Why?
- Include important variables of your sample population
- Introduce methods for each set of experiments separately

Proposed Method

Overview

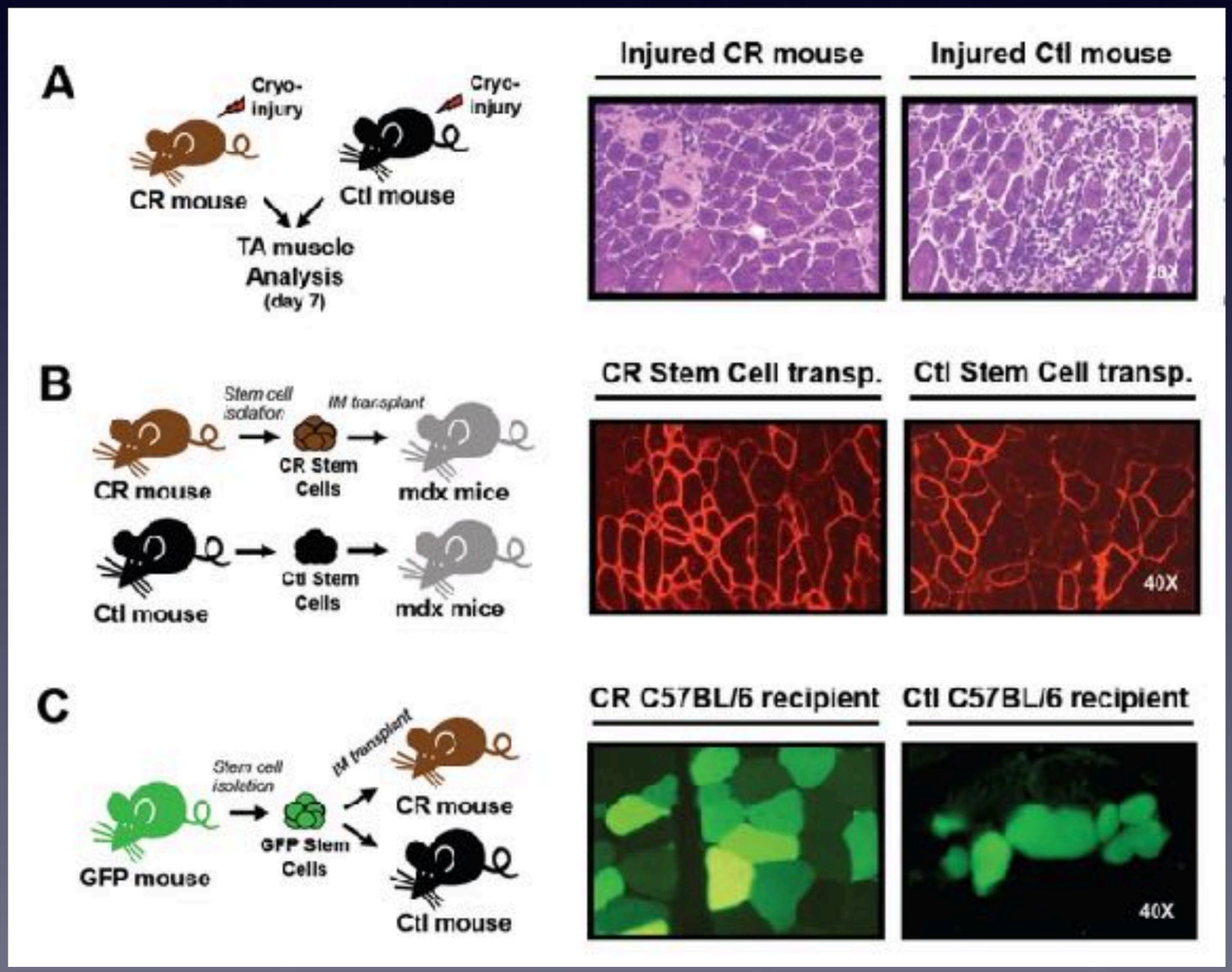


$MOV_{1,i}$: movement from frame 1 to frame i

Use visuals to *show* the overall experimental design

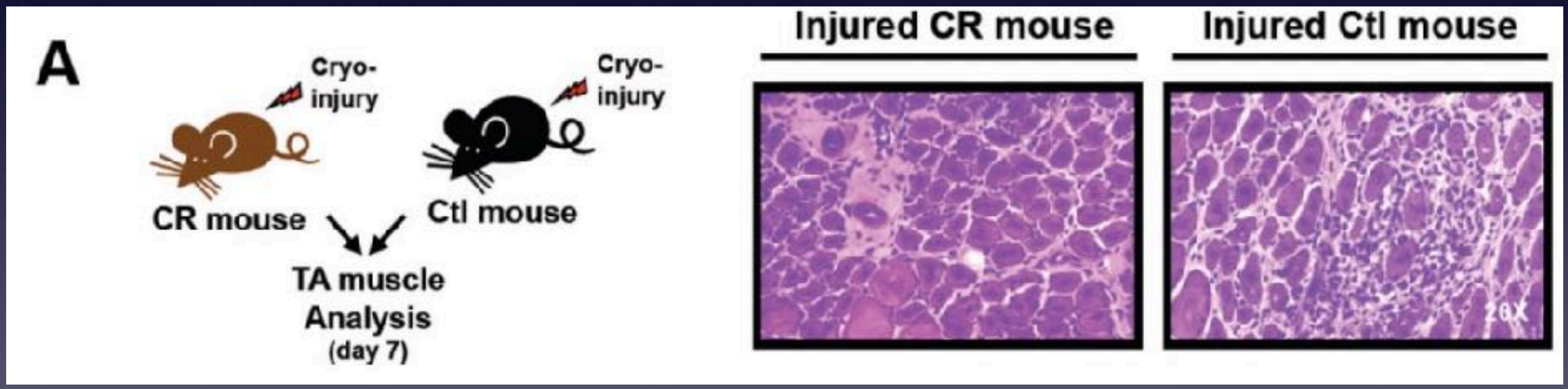
Results

Too many results on one slide



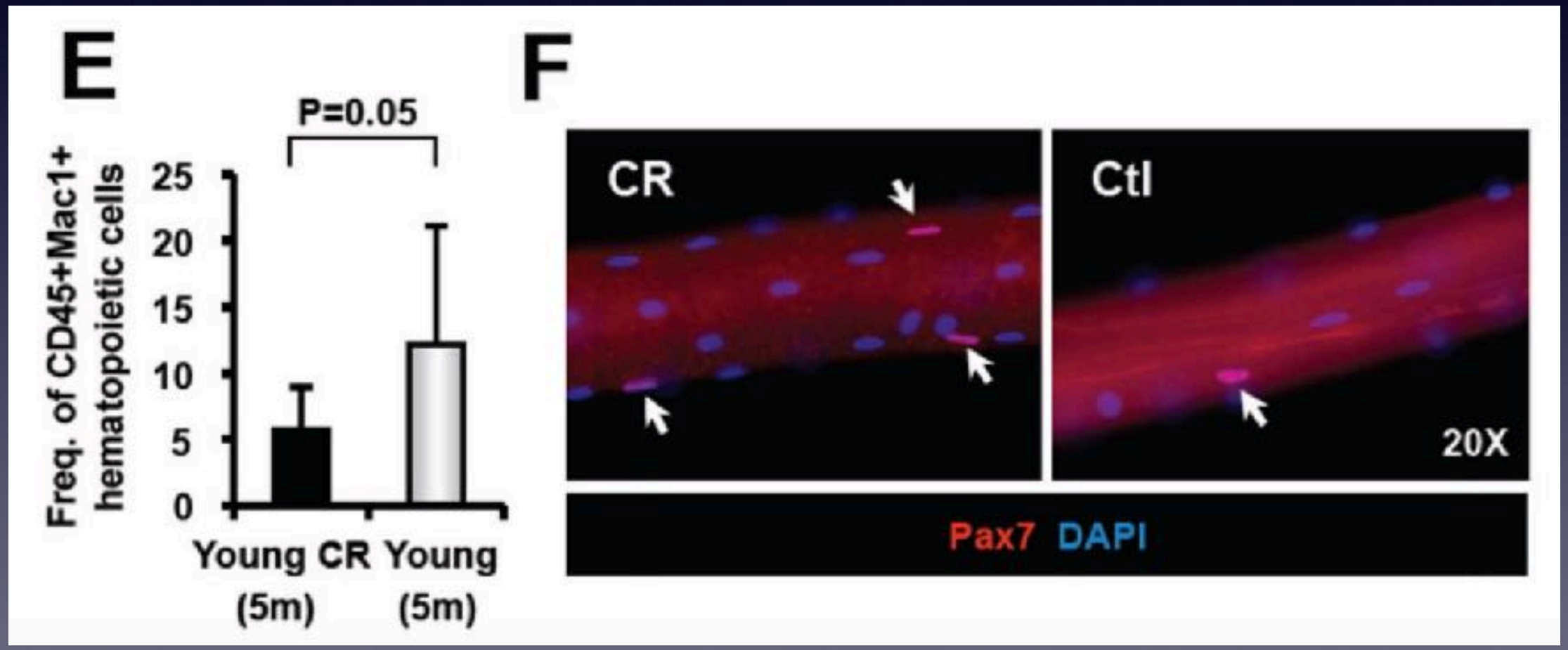
Results

1 main result per slide



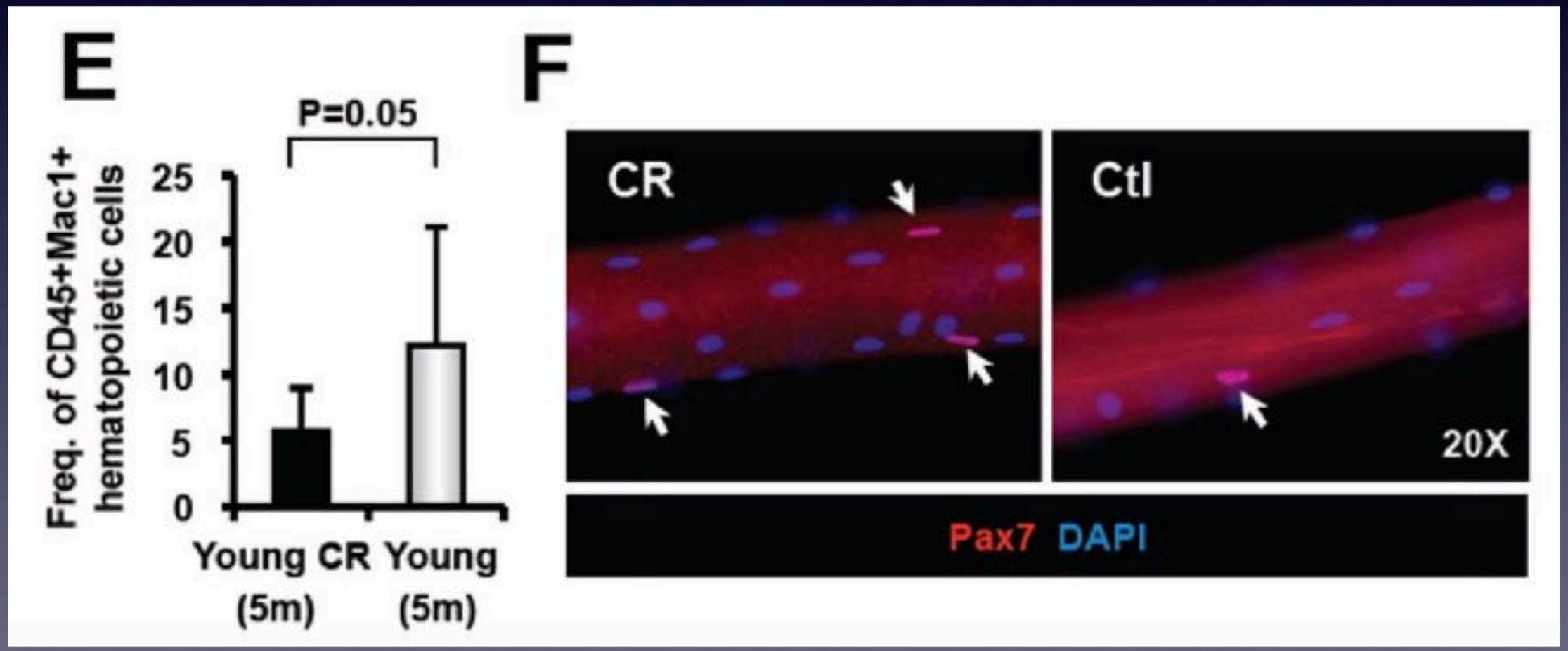
Results

Define your variables first



Results

You MUST give credit to your collaborators if you're presenting their work



Credit: Pippi Longstocking

Use active twitter-like titles

Federal Healthcare Spending

- Spending on major federal healthcare programs grew from 2% of GDP in 1983 to almost 5% in 2013 and is projected to increase thereafter.
- The aging of the population and different policy shifts caused spending on Social Security and major federal healthcare programs to grow from almost 7% of GDP in 1983 to nearly 10% of GDP over 30 years.
- By comparison, spending on all of the federal government's other programs and activities, excluding net outlays for interest, fell from 3.5% of GDP in 1983 to 2% in 2013.

Federal Health Care Spending Increased 1983 - 2013

Spending on **major federal healthcare programs** grew from **2%** of GDP in 1983 to **5%** in 2013

Major healthcare programs plus Social Security grew from 6.7% of GDP in 1983 to 9.5% of GDP in 2013

Spending on all **other federal programs** fell from **3.5%** of GDP in 1983 to **2%** in 2013

Conclusions

- Write your conclusion statement **clearly** and **concisely**
- State the **importance** of your work (i.e. what gap in knowledge was filled in the field?)

Future Directions

- Questions that remain to be answered through future studies
- Discuss only if there is enough time

Acknowledgements

- Principal investigator
- Graduate or postdoc mentor
- Collaborators
- Funding sources

References

Baker, D. J., Wijshake, T., Tchkonia, T., LeBrasseur, N. K., Childs, B. G., Van De Sluis, B., ... & van Deursen, J. M. (2011). Clearance of p16 Ink4a-positive senescent cells delays ageing-associated disorders. *Nature*, *479*(7372), 232.

Colman, R. J., Beasley, T. M., Kemnitz, J. W., Johnson, S. C., Weindruch, R., & Anderson, R. M. (2014). Caloric restriction reduces age-related and all-cause mortality in rhesus monkeys. *Nature communications*, *5*, 3557.

Rajpathak, S. N., Liu, Y., Ben-David, O., Reddy, S., Atzmon, G., Crandall, J., & Barzilai, N. (2011). Lifestyle factors of people with exceptional longevity. *Journal of the American Geriatrics Society*, *59*(8), 1509-1512.

Rattan, S. I. (2014). Aging is not a disease: implications for intervention. *Aging and disease*, *5*(3), 196.

Do not bullet your references

Slide Design

Slide Design

- Keep text minimal
- Reduce unnecessary blank space
- Break one slide into separate simpler slides
- Don’t include material you don’t plan to explain

Federal Healthcare Spending

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Stem Cell Therapy Injections for Wellness

- Over 4 million MSCs in one treatment
- $4500 for a single treatment with no follow up necessary
- Administered intravenously
- Used as a preventative treatment for anti-aging
- Claims to target the entire body for multiple effects
- Claims no risk of cancer or risk of the body detecting the cells as foreign
- Not paired with any sort of immunosuppressant

Use the blank space

Slide Design

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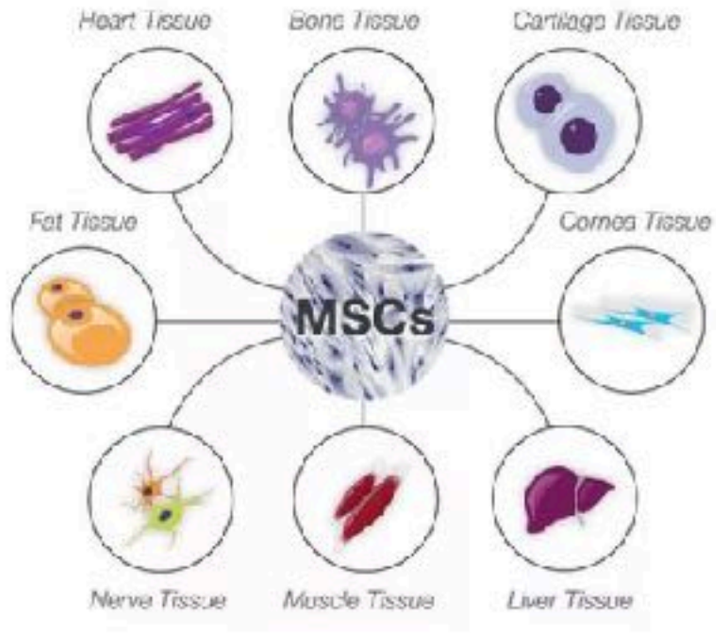
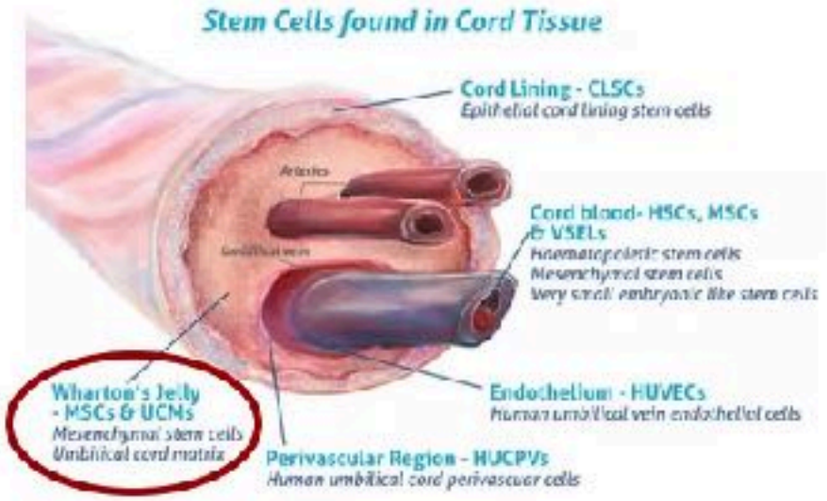
Mechanism of Treatment

- Mesenchymal stem cell
  - Multipotent stem cells, able to differentiate into variety of cell types
  - Invaluable in the repair of tissue and organ damage
  - Anti-inflammatory and immune-privilege potential (Gao et al., 2016)
  - "Produce paracrine factors that inhibit apoptosis, stimulate endogenous cell proliferation, and/or activate tissue resident stem cells in the site of injury" (Ischim et al., 2010)
- Isolate mesenchymal stem cells from Wharton's Jelly of the umbilical cord and the amniotic membrane
  - Not valid under FDA as treatment is not homologous





Breakup into two slides

Text

- Keep it large and simple (size 48)
- Text size of >36 is ideal
- 28-34 are also easy to read
- 24 is difficult to read from the back of the room

Delivery

- Demonstrate confidence
- Know the material
- Practice! Practice! Practice!
- Don’t read (unless it is normal practice in your discipline)
- Be engaging

Thank you!