Making visually-appealing presentations

Laura DeNardo
June 22, 2022

Outline

1. Designing your slides

- Creating a visual theme with fonts and colors

- Titles and Outlines

- Visual framing and sizing

- Simplify Your Slides

- Beautify your figures

2. What to say when

3. Real-life examples

Create a visual theme: Choosing Fonts

Good

Helvetica Neue

Helvetica

Arial

Meh

Calibri

Times

Times new roman

Forbidden

Comic Sans

Brush Script

Noteworthy

Create a visual theme: Choosing Fonts

Basic Font

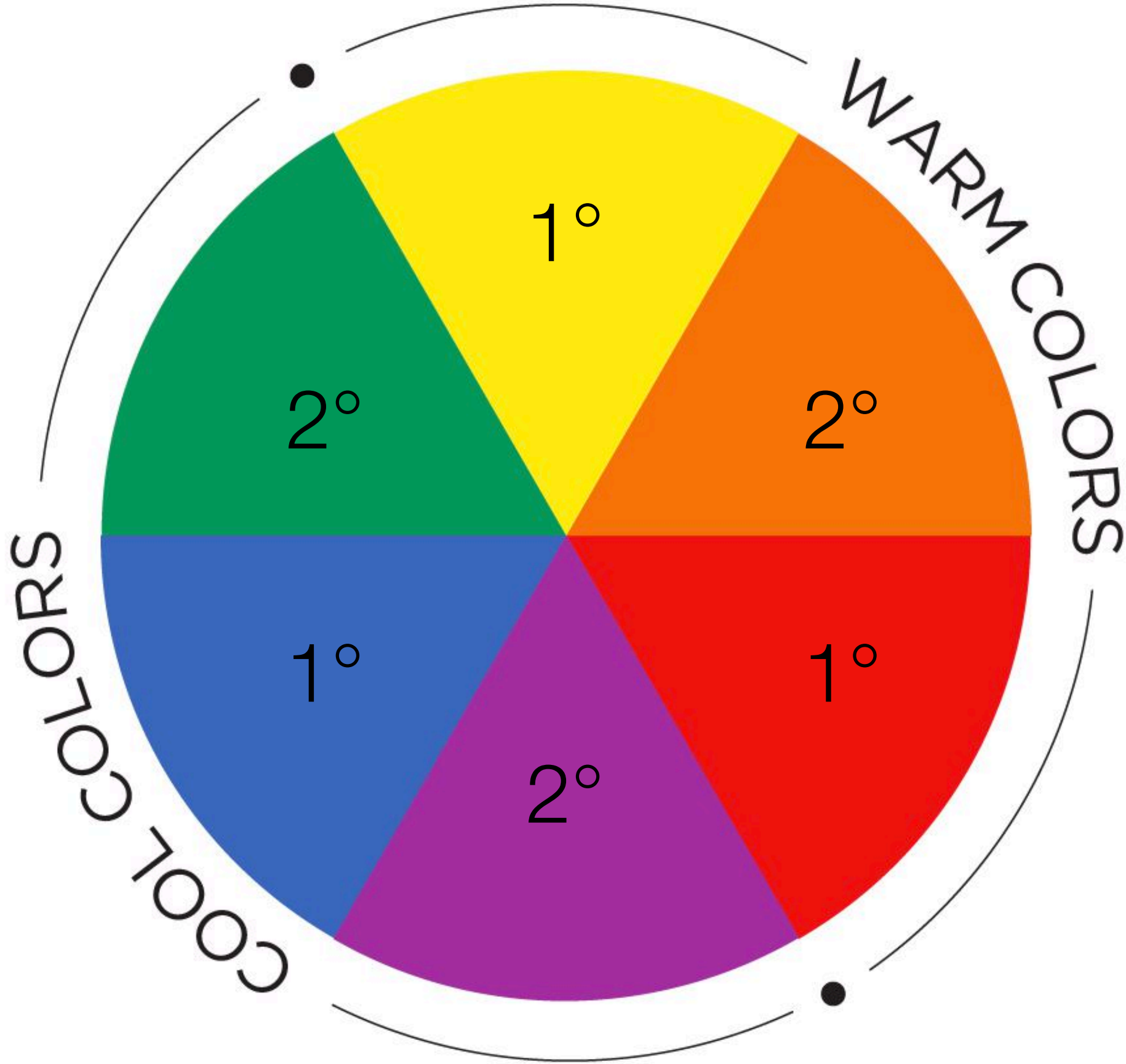**Emphasis**

Emphasis

Emphasis

HARDER TO READ ON A SLIDE

Harder to read on a slide

Create a visual theme: Color Theory
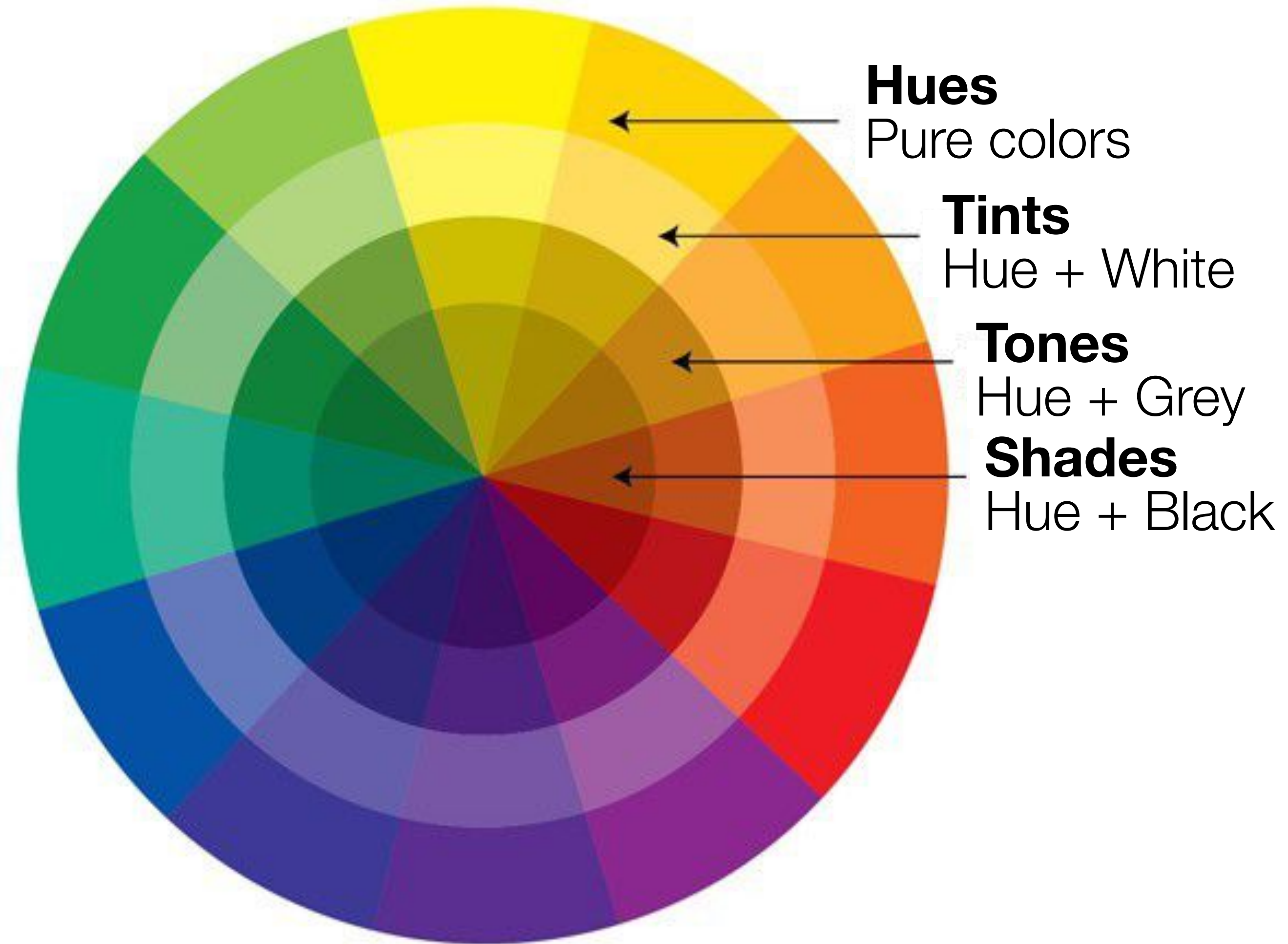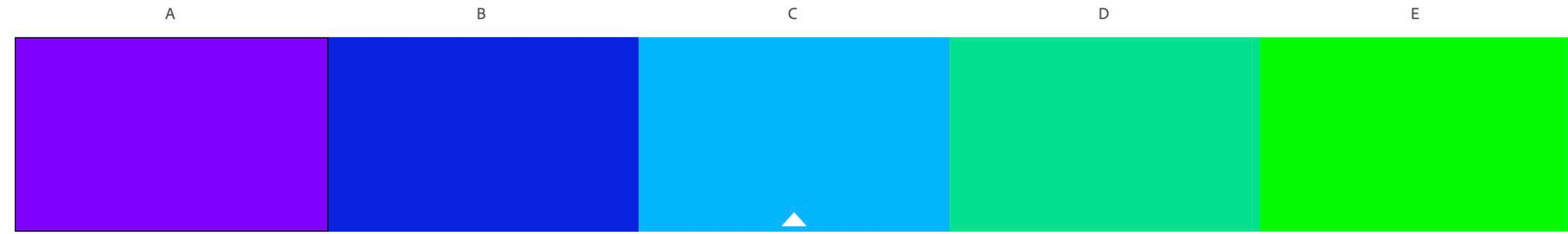
Create a visual theme: Color Theory

Create a visual theme: Choosing Your Palette

https://color.adobe.com/create/color-wheel

Create a visual theme: Visual Accessibility

https://color.adobe.com/create/color-wheel

Create a visual theme: Visual Accessibility

https://color.adobe.com/create/color-wheel

Create a visual theme: Choosing Your Palette

https://colorbrewer2.org

Create a visual theme: Using Color for Emphasis
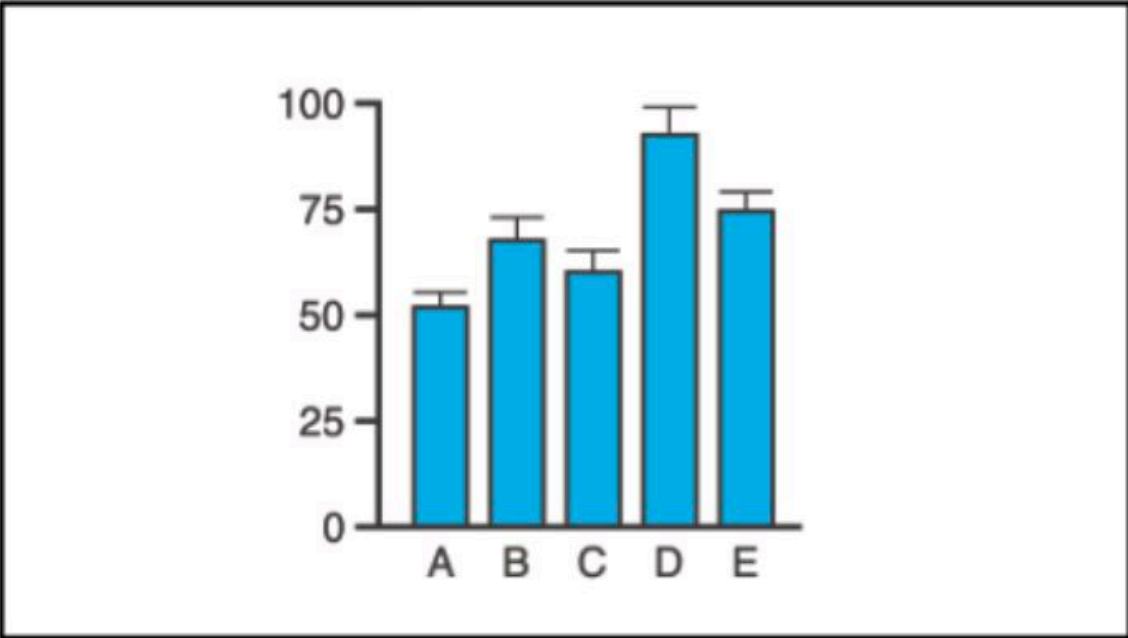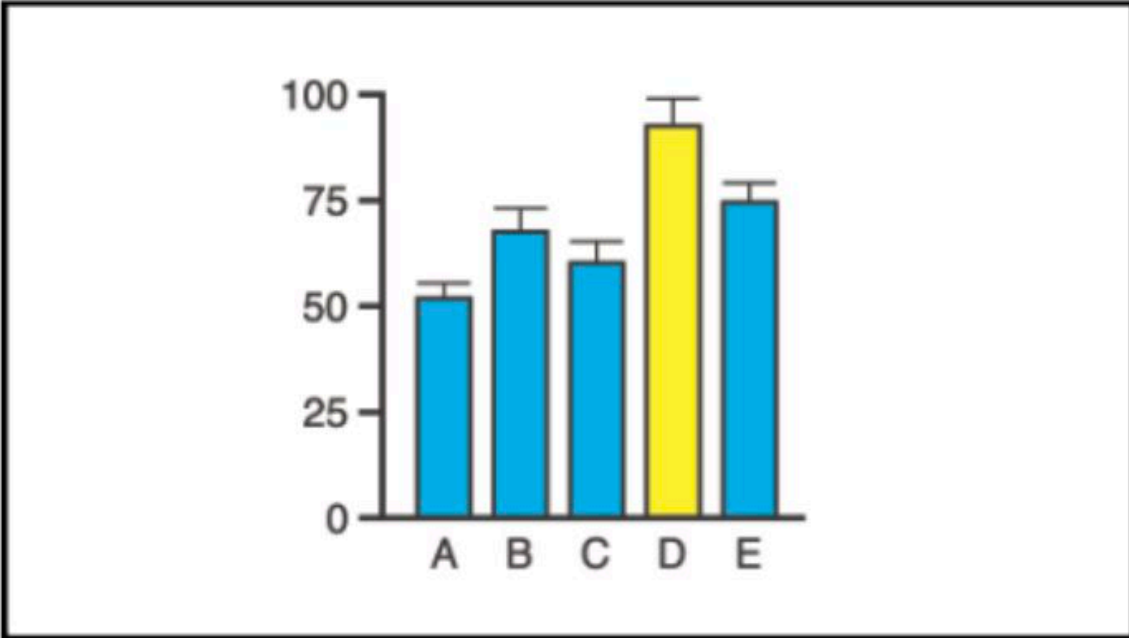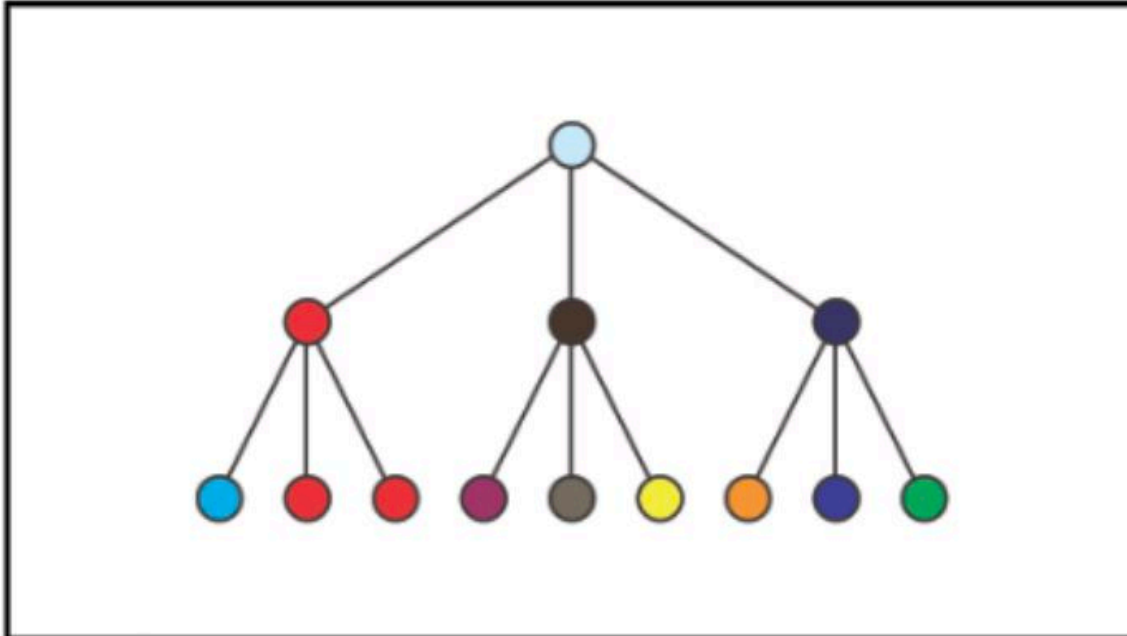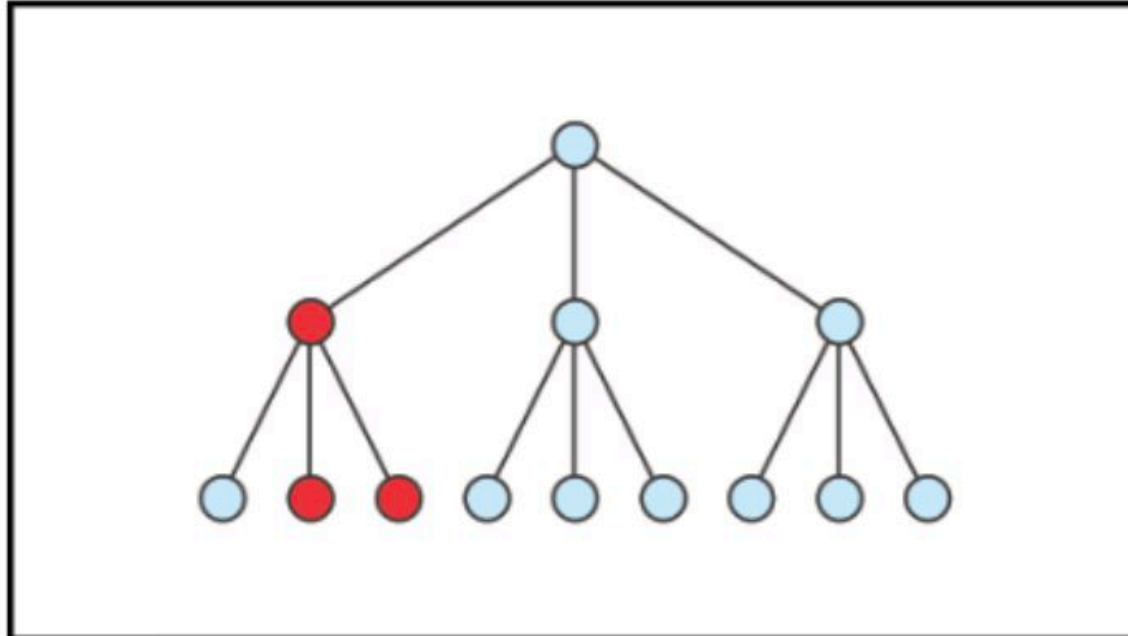
Create a visual theme: Using Color to Define Groups
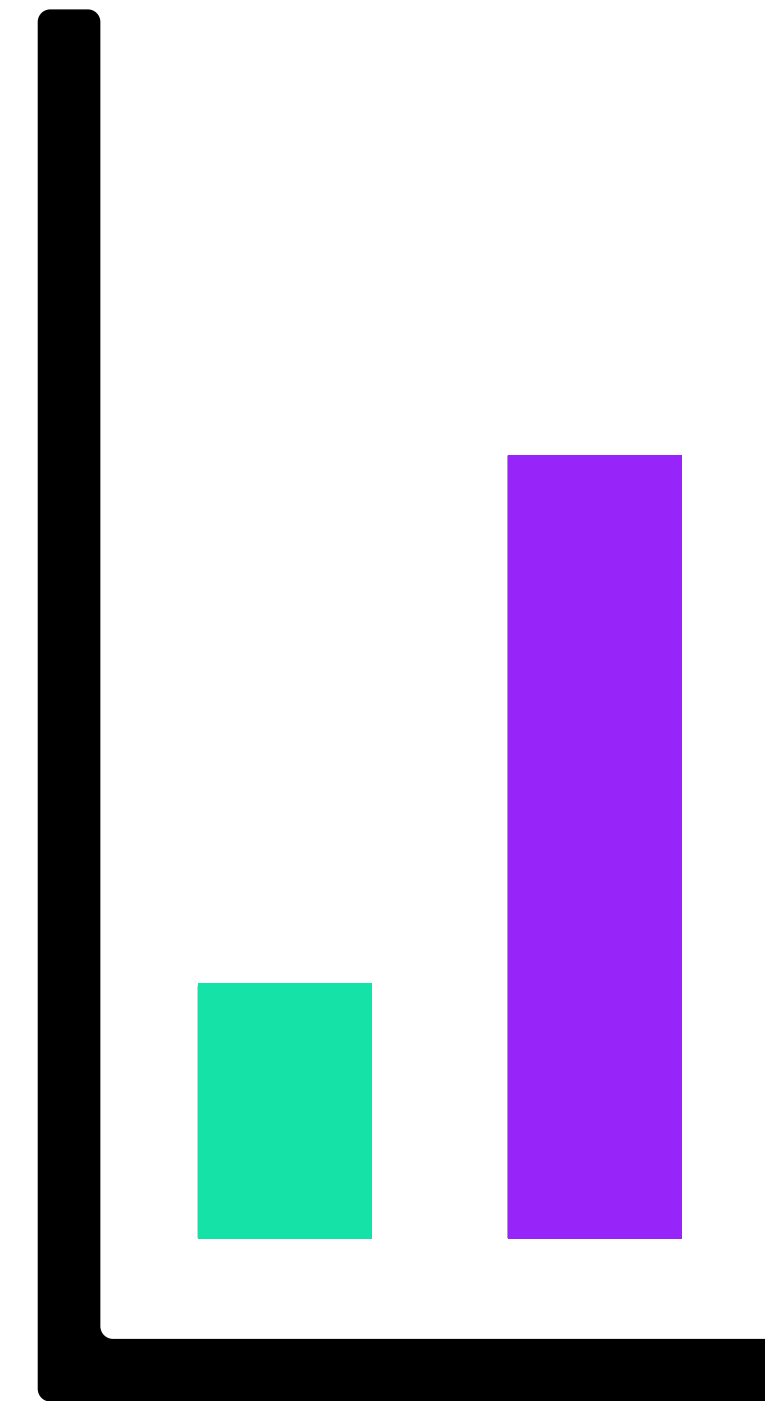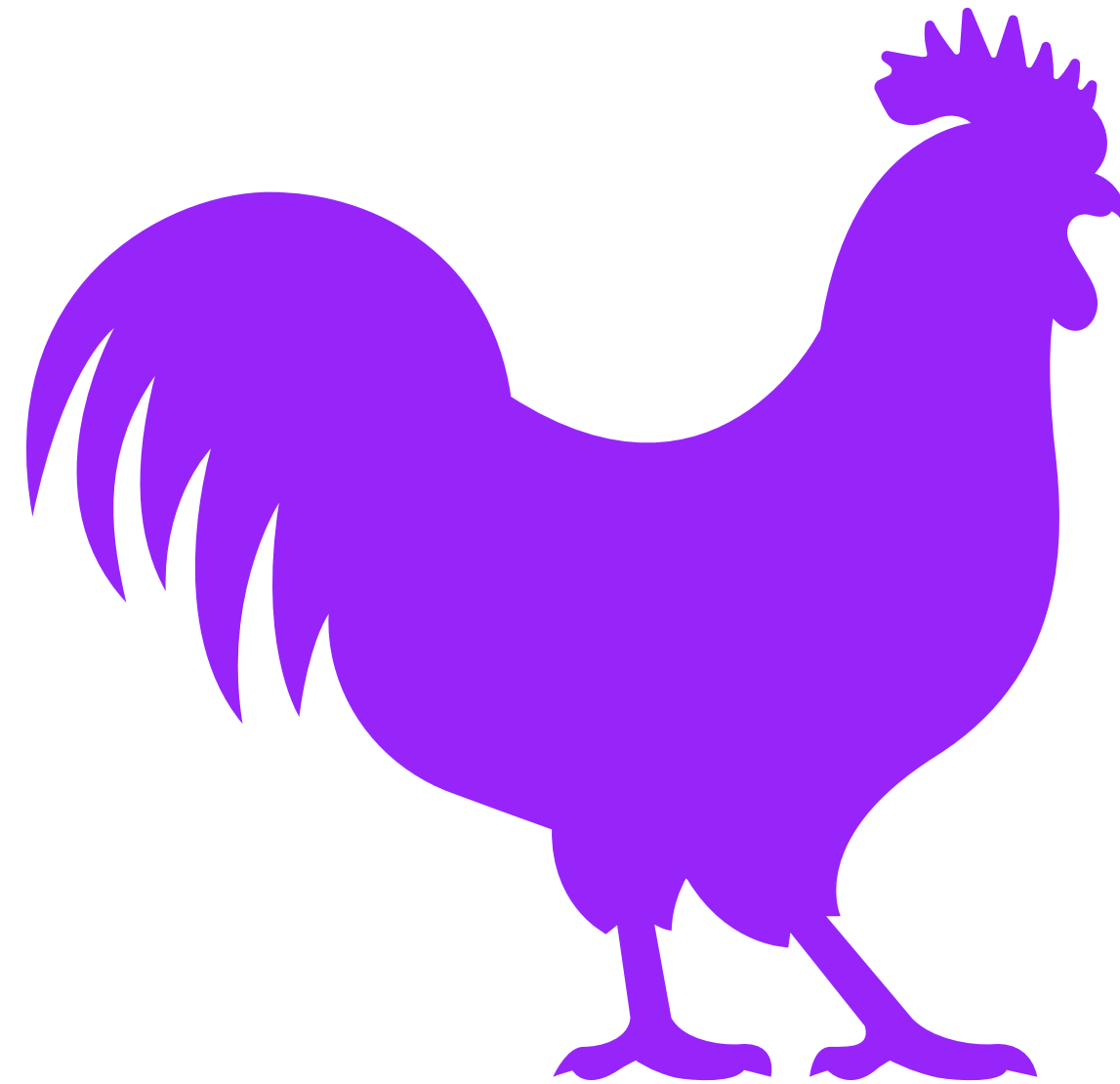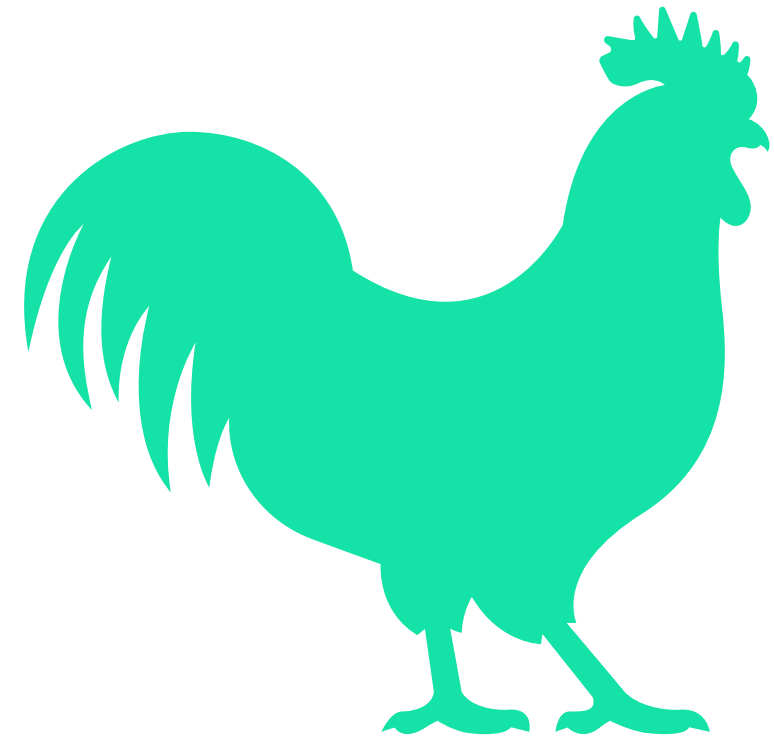
Create a visual theme: Standard Slide Format (82pt)

84pt

37pt
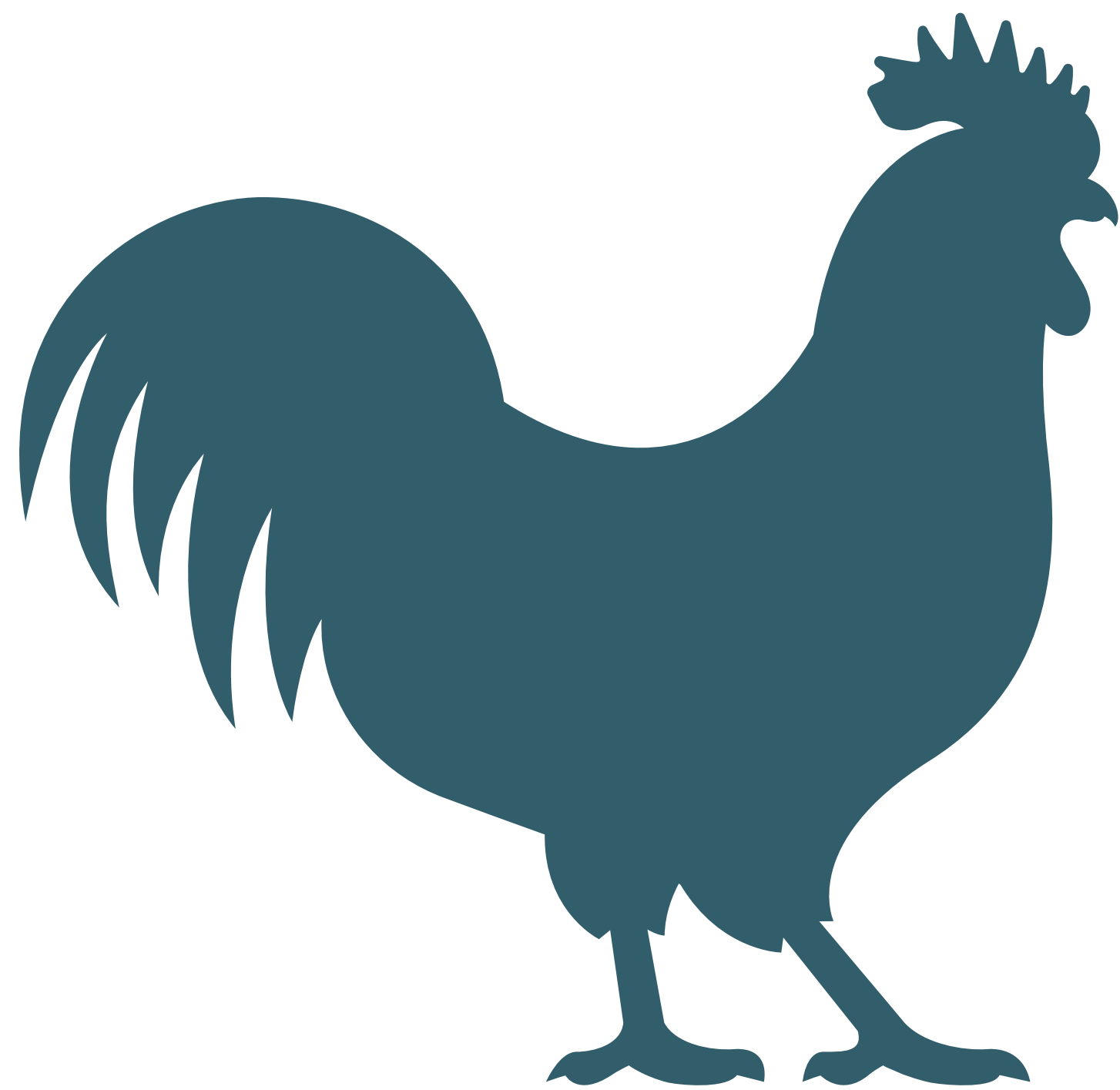
Subtitle (60pt)

Subtitle (60pt)
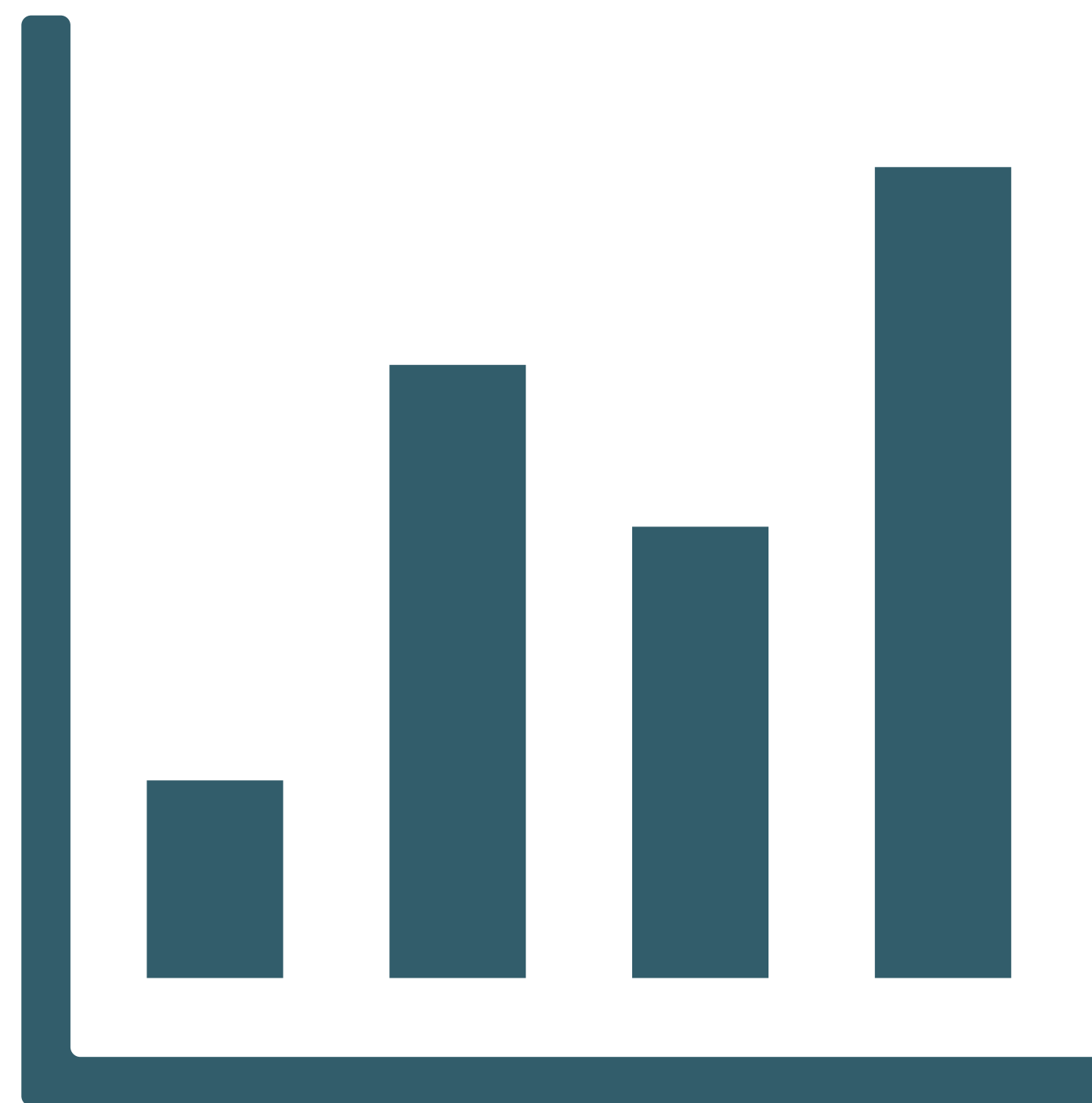
26pt

References (42pt)

996pt

Every Slide Needs a Title

Body Temperature (°C) vs Time (h) — Baseline, Sadikinin

Sadikinin lengthens torpor bouts

Body Temperature (°C) vs Time (h) — Baseline, Sadikinin
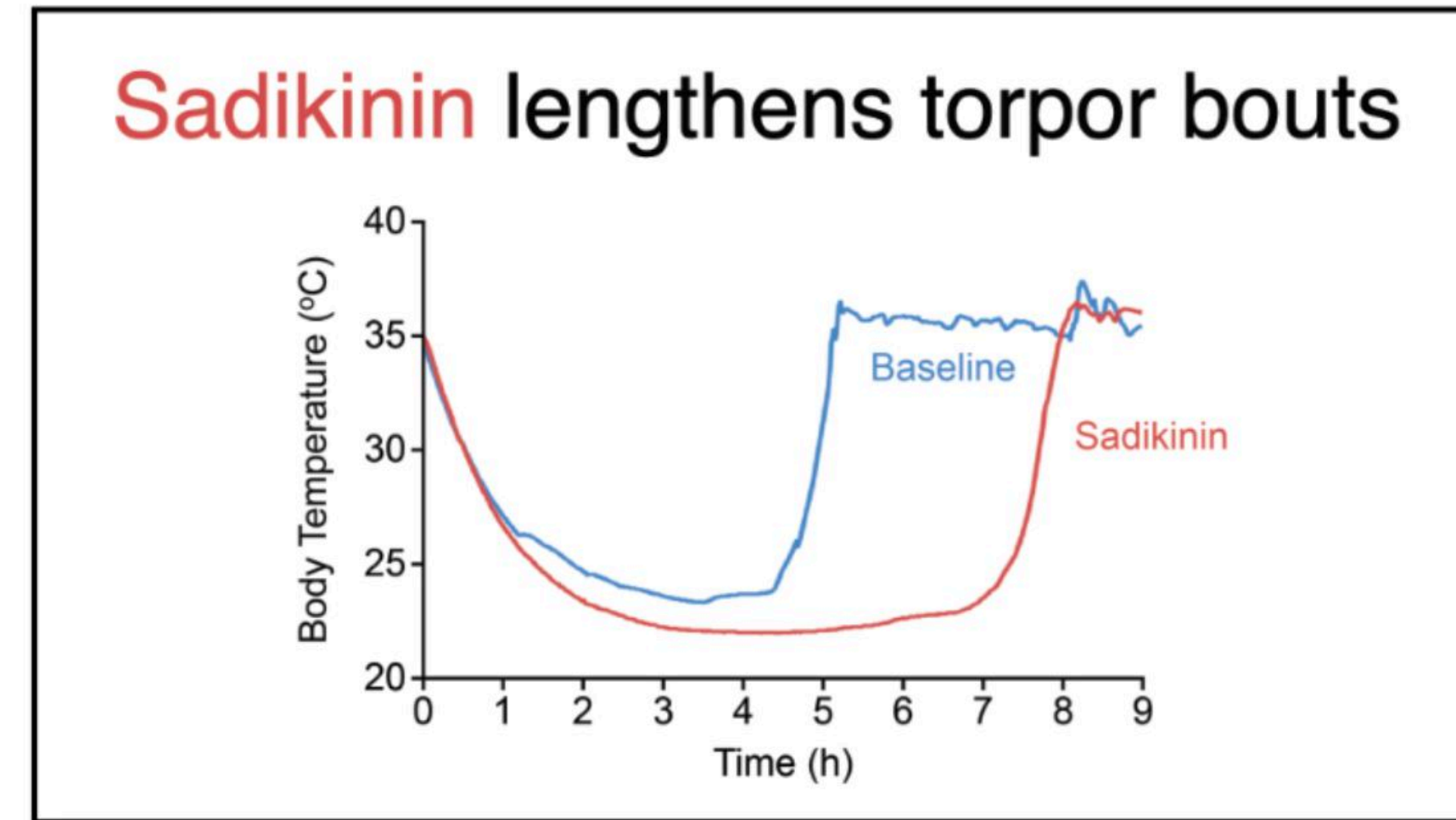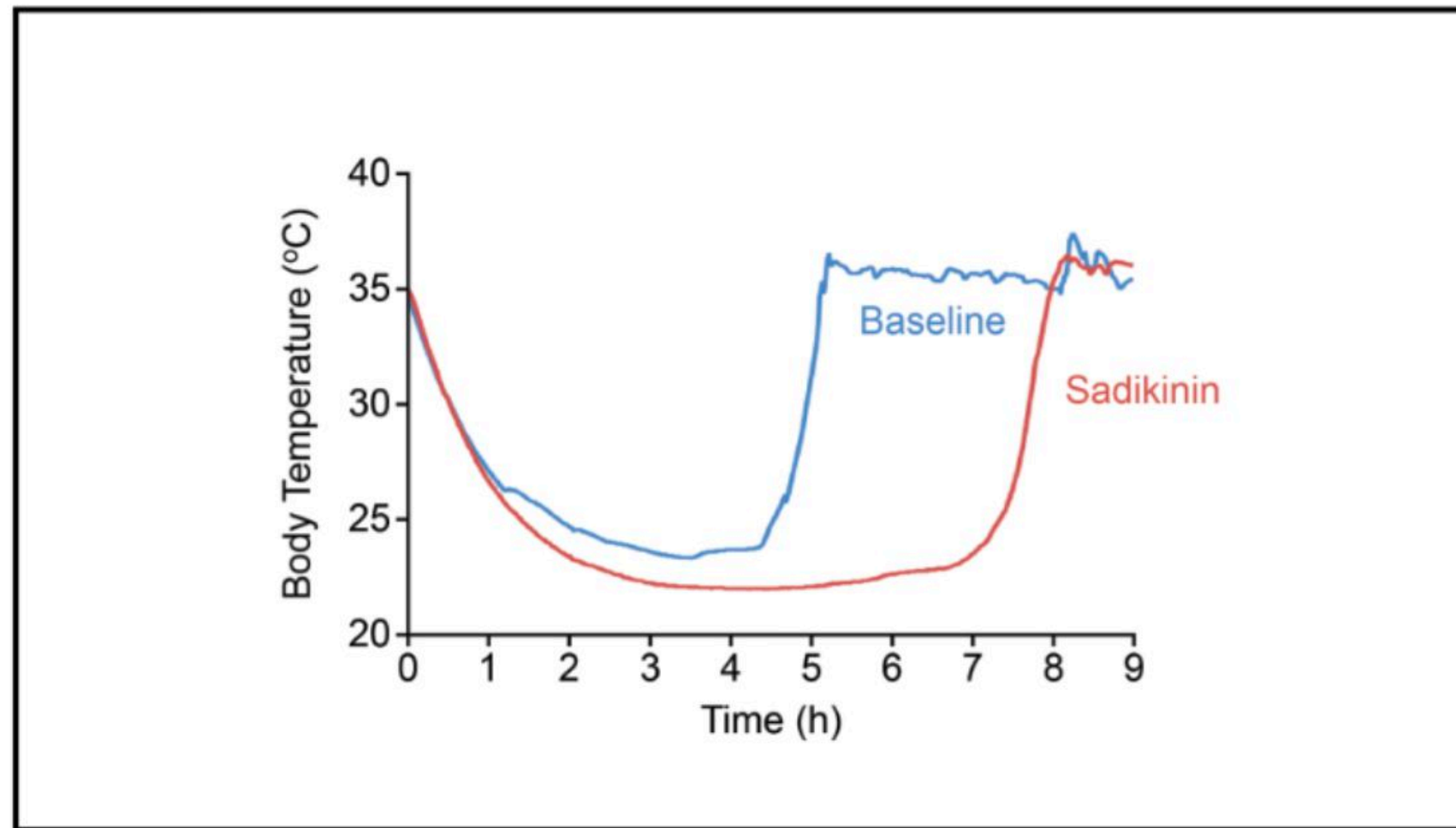
Background

Infants with more experiences of stroking or cuddling:

Cry less often

Vocalize more

Smile more

Infants benefit from positive touch

Infants with more experiences of stroking or cuddling:

Cry less often

Vocalize more

Smile more

Background: Avoid pre-made themes

Background: White is generally a good idea

Background: Use black for immunofluorescence
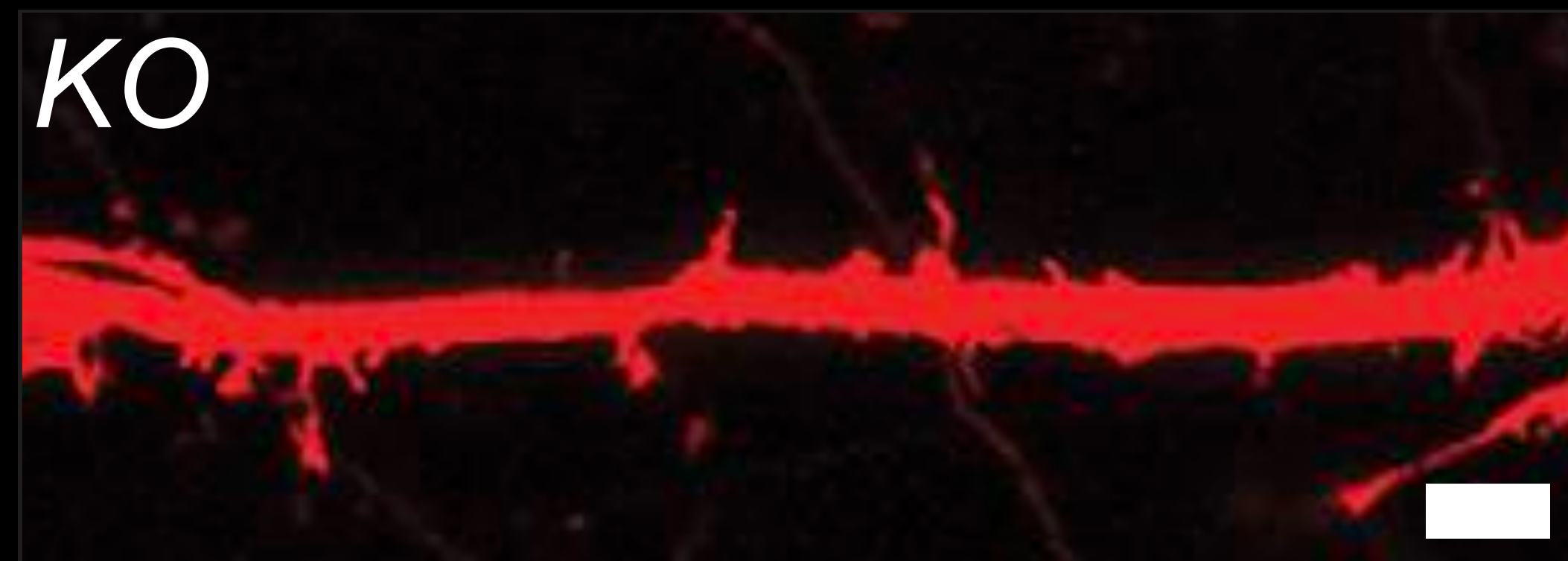
Balance: Channel Renaissance not Baroque

Renaissance

Baroque

Balance: Channel Renaissance not Baroque

stability + symmetry
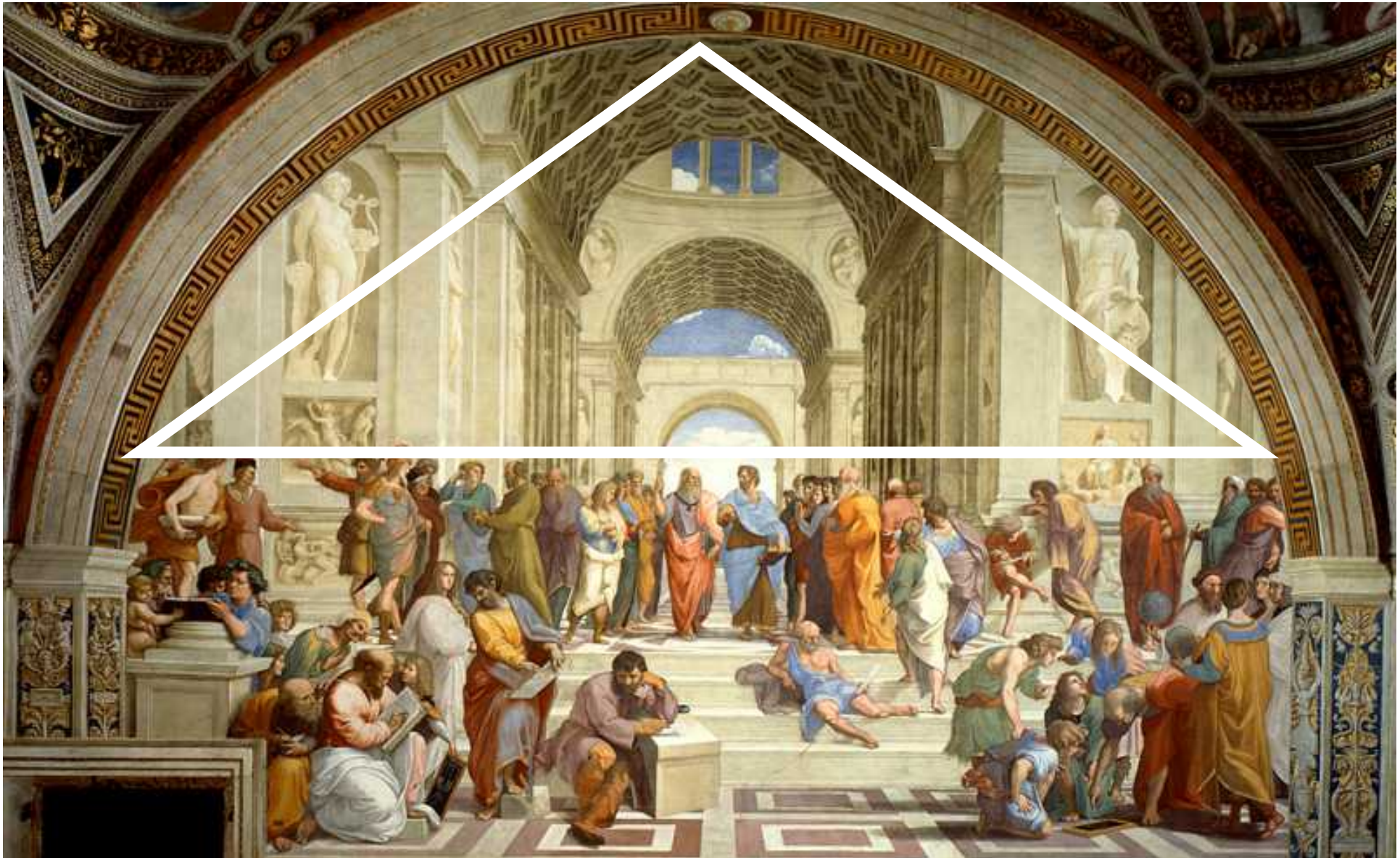
upward diagonals + chaos

Framing: Think about the negative space

https://threadreaderapp.com/thread/1532531980398641164.html
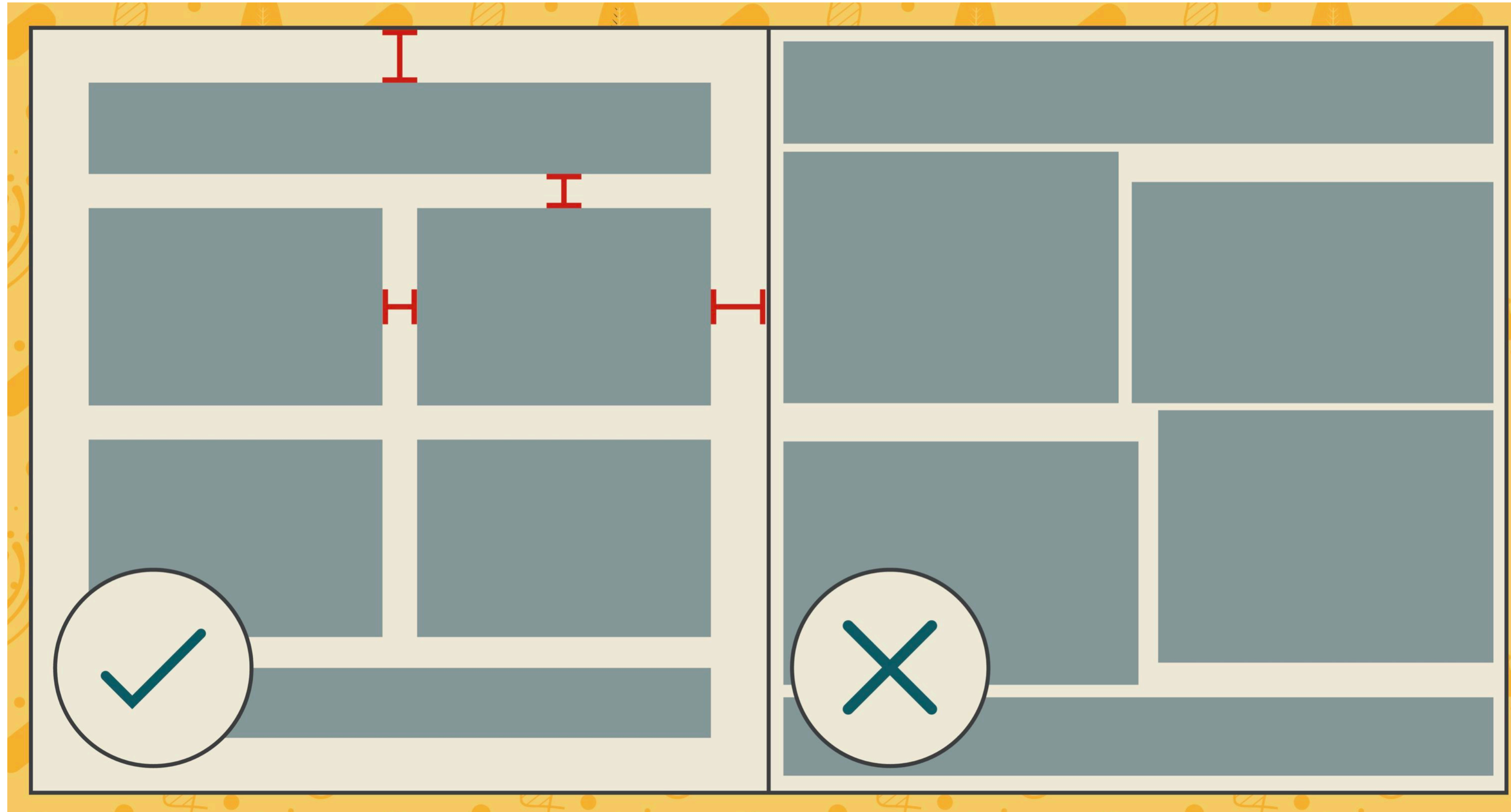
Framing: Imagine Grids

Three column
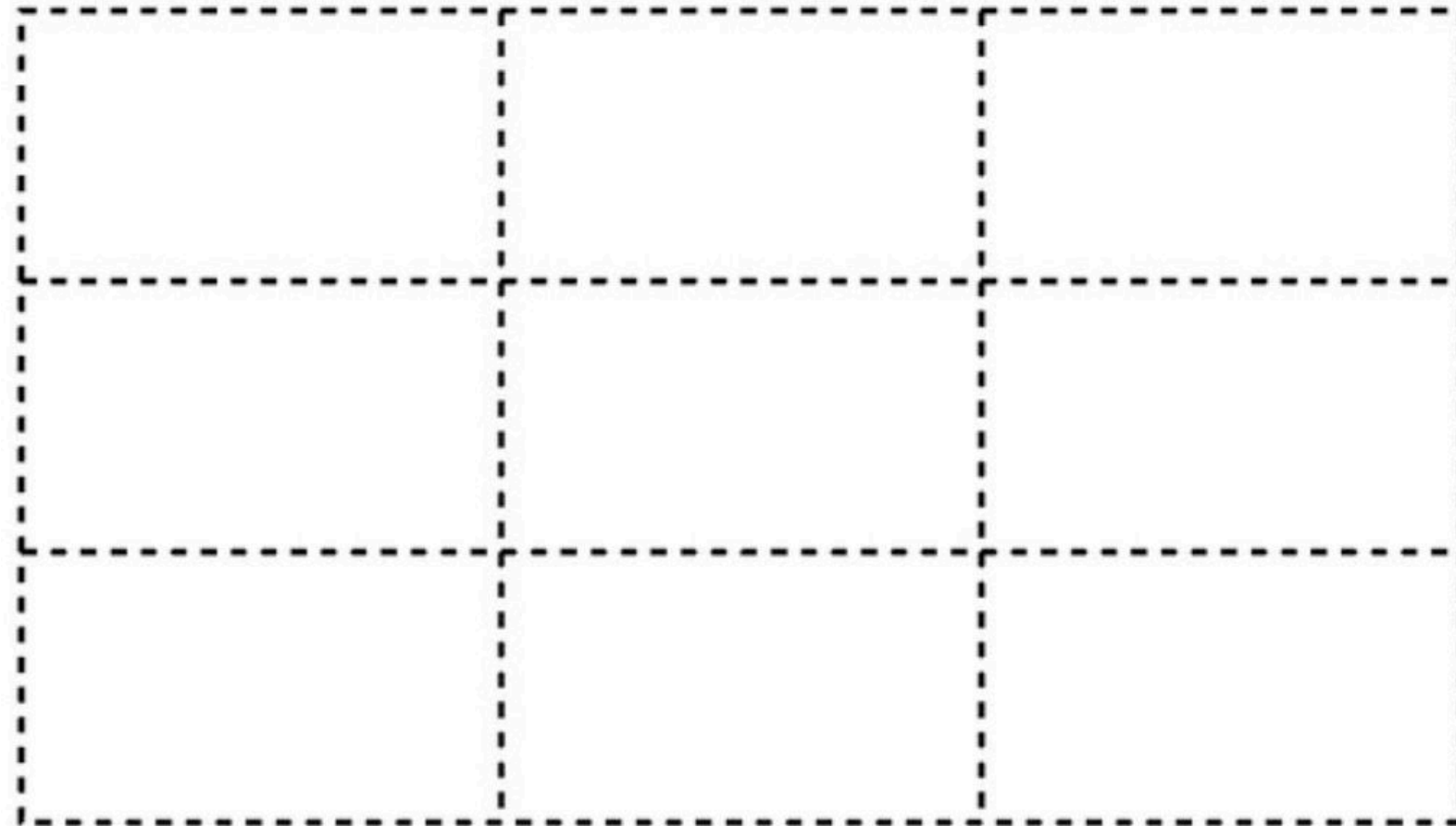
Four column

Transducing cells with electroporation

Cells and DNA placed in chamber

Brief electric pulse opens pores in cell

DNA remains in cell
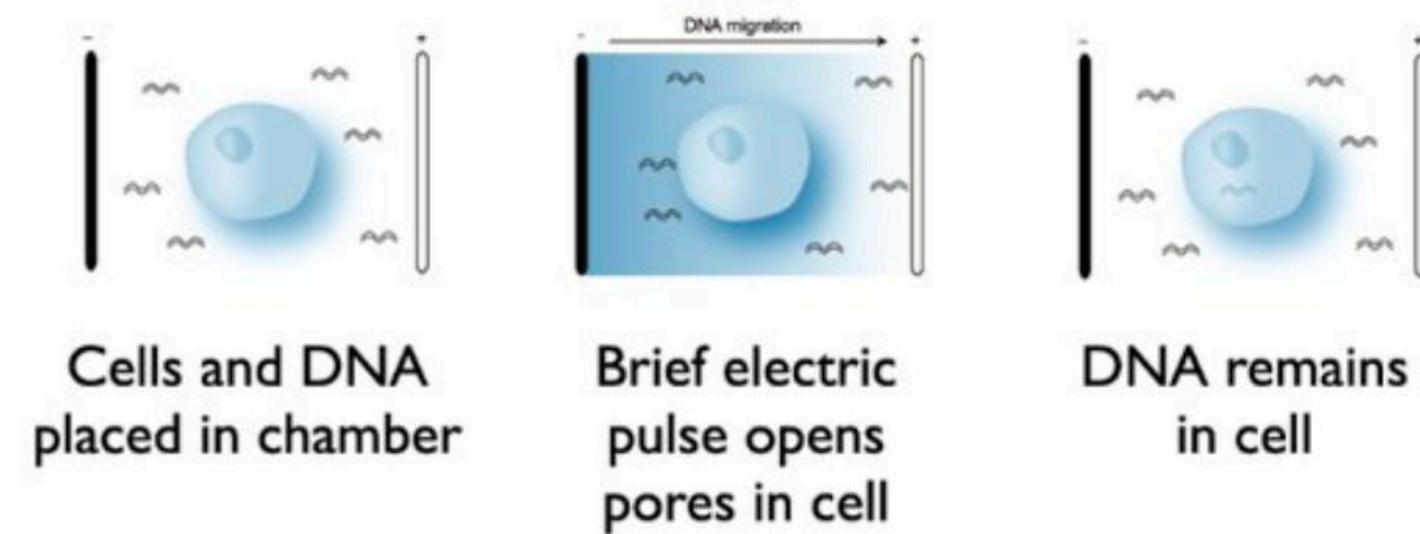
In utero electroporation

Pregnant rodent

Developing embryos

Injection of DNA construct

Application of electric field

https://threadreaderapp.com/thread/1532531980398641164.html
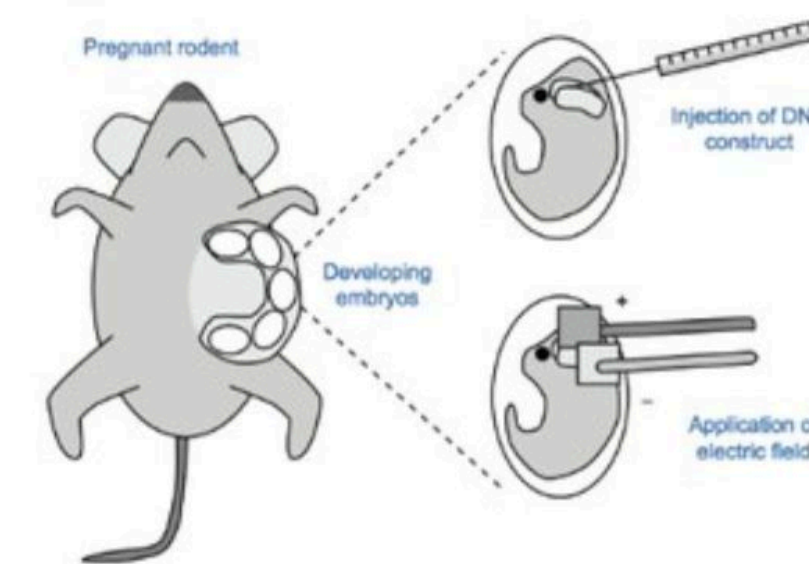
Sizing: Bigger is Better

Before

After

Beach Cleanup Status

Since 2008, our volunteer program has maintained a clean beach with two site visits per week. Visitors report much less litter and debris.

A Cleaner Beach

Simplify: Reduce the amount of info per slide

Before

After

Simplify: Pictures speak louder than words

Before

After

Beautify: Use graphical schematics

Experimental Design   Graphical abstract/model/summary

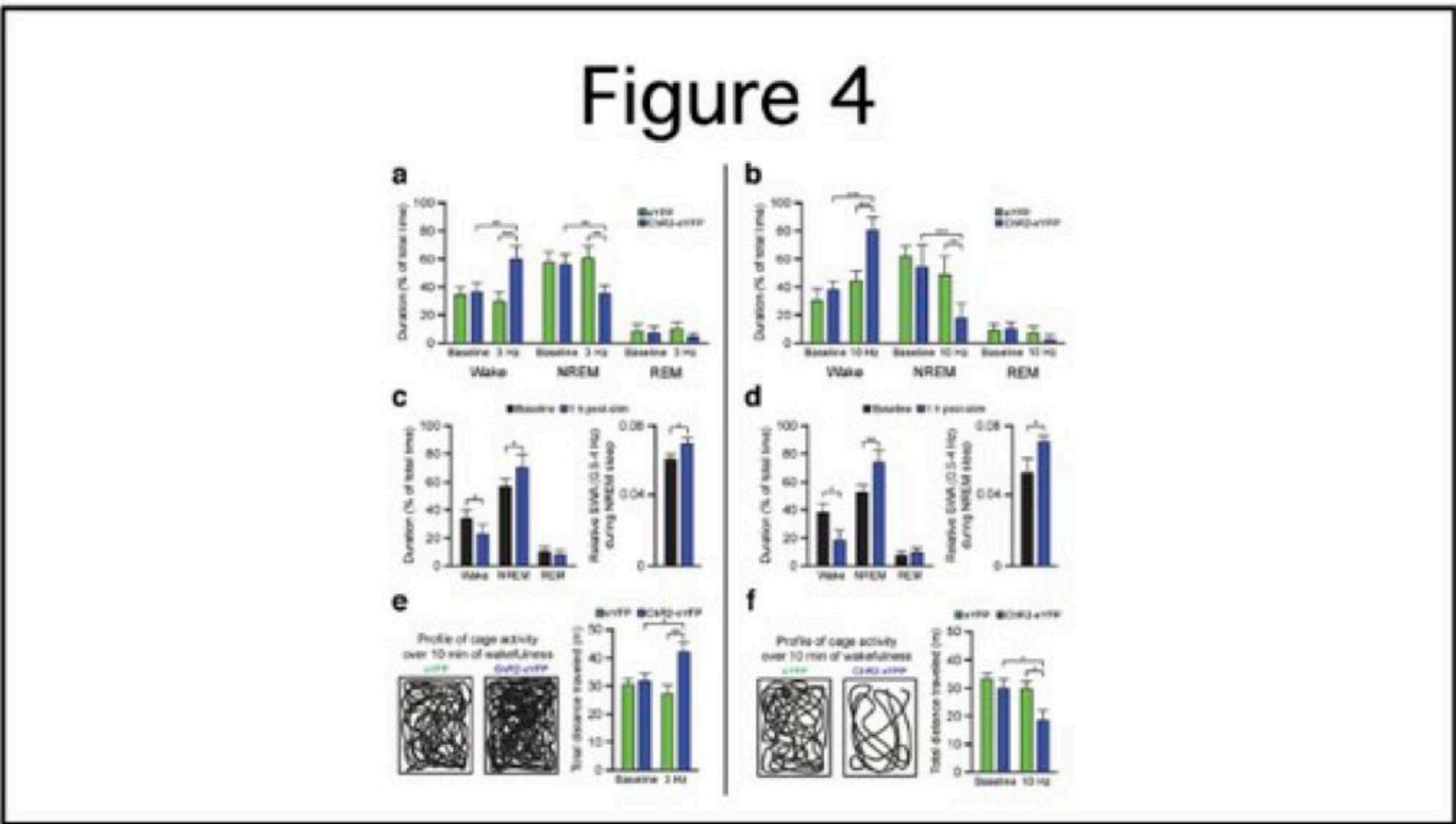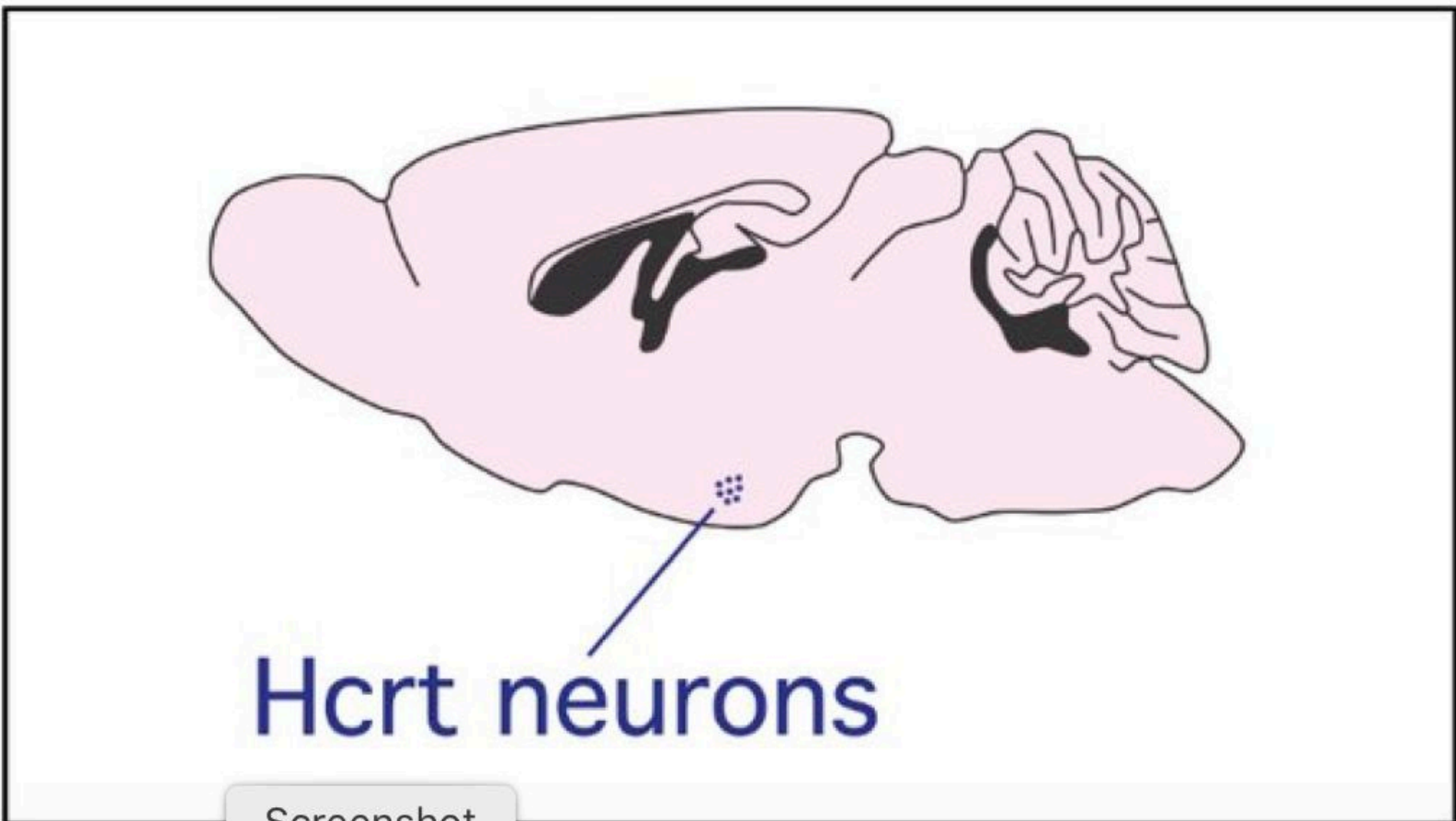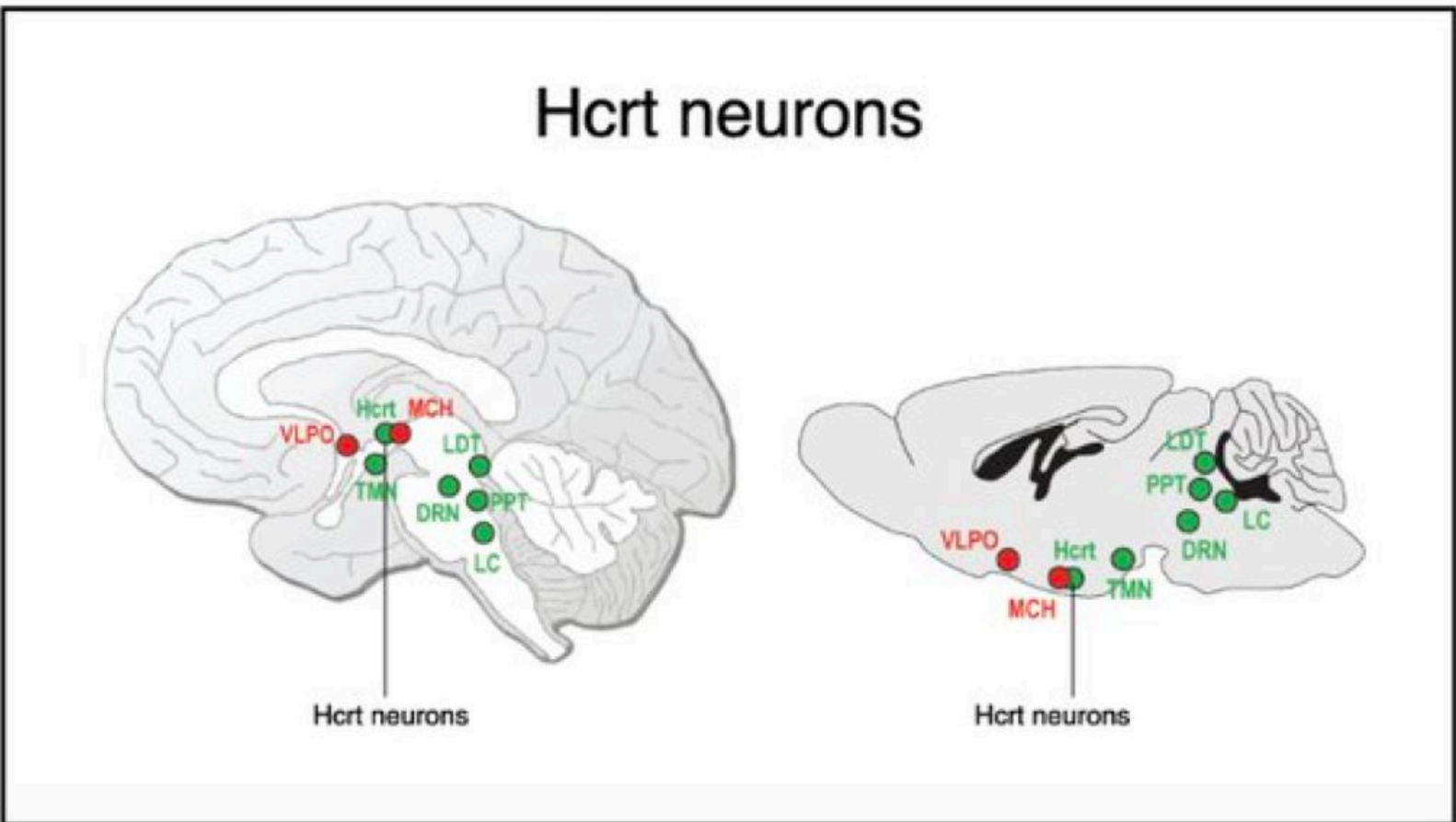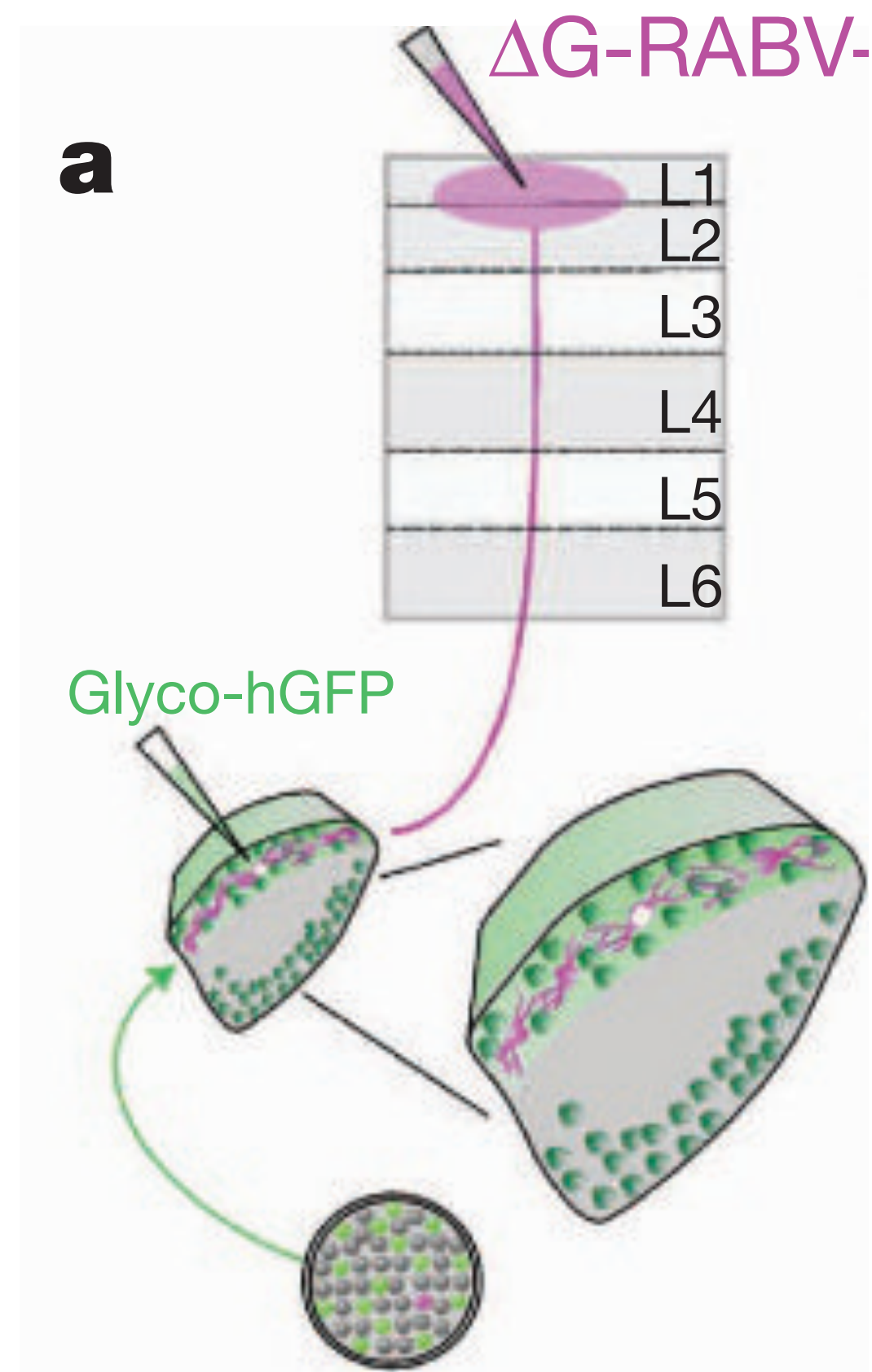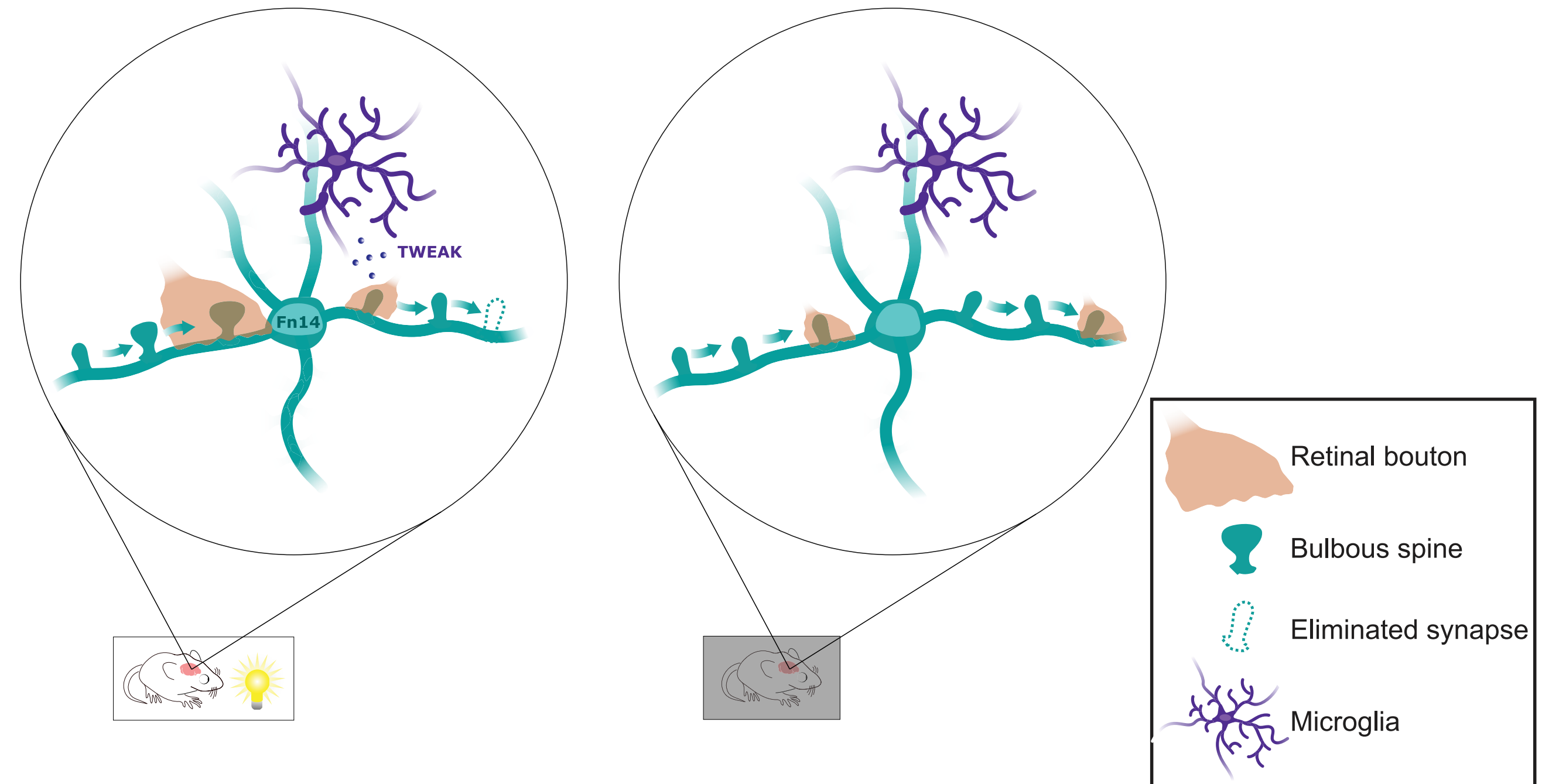# Beautify: Take advantage of existing resources

Beautify: Make nice plots

Never use excel

Make fonts legible

Outline

1. Designing your slides

   - Creating a visual theme with fonts and colors

   - Titles and Outlines

   - Visual framing and sizing

   - Simplify Your Slides

   - Beautify your figures

2. What to say when

3. Real-life examples

Teach your talk

"Assume your audience has zero
knowledge but infinite intelligence."
-Max Delbruck

State the significance and outstanding Qs

Why is your topic important?

- Is the phenomenon you study important for survival?

- Is it relevant to human health?

What are the major unanswered questions in the field?

What hurdles have impeded progress?

What approaches will you use to address major gaps in knowledge?

Background

1. Give your audience the tools they need to understand your work

  - What key pieces of information are necessary to understand what you will tell them?

  - What motivated your work?

2. Scholarship

  - Give credit where credit is due

3. Background may come at different points in the talk

Rules for Outlines and Summaries

<15 min

- no outline needed
- 1 summary slide at the end

20–30 min

- outline slide at the beginning of the talk
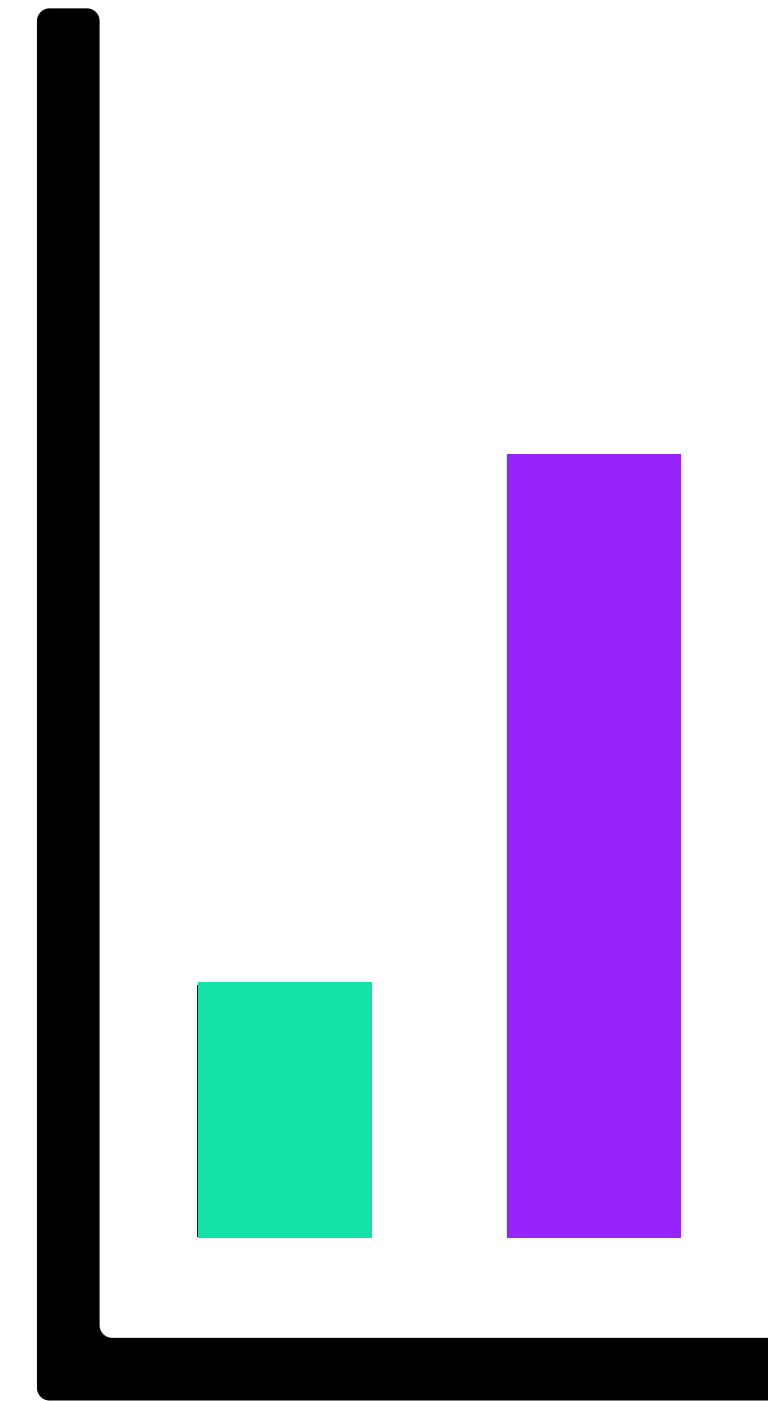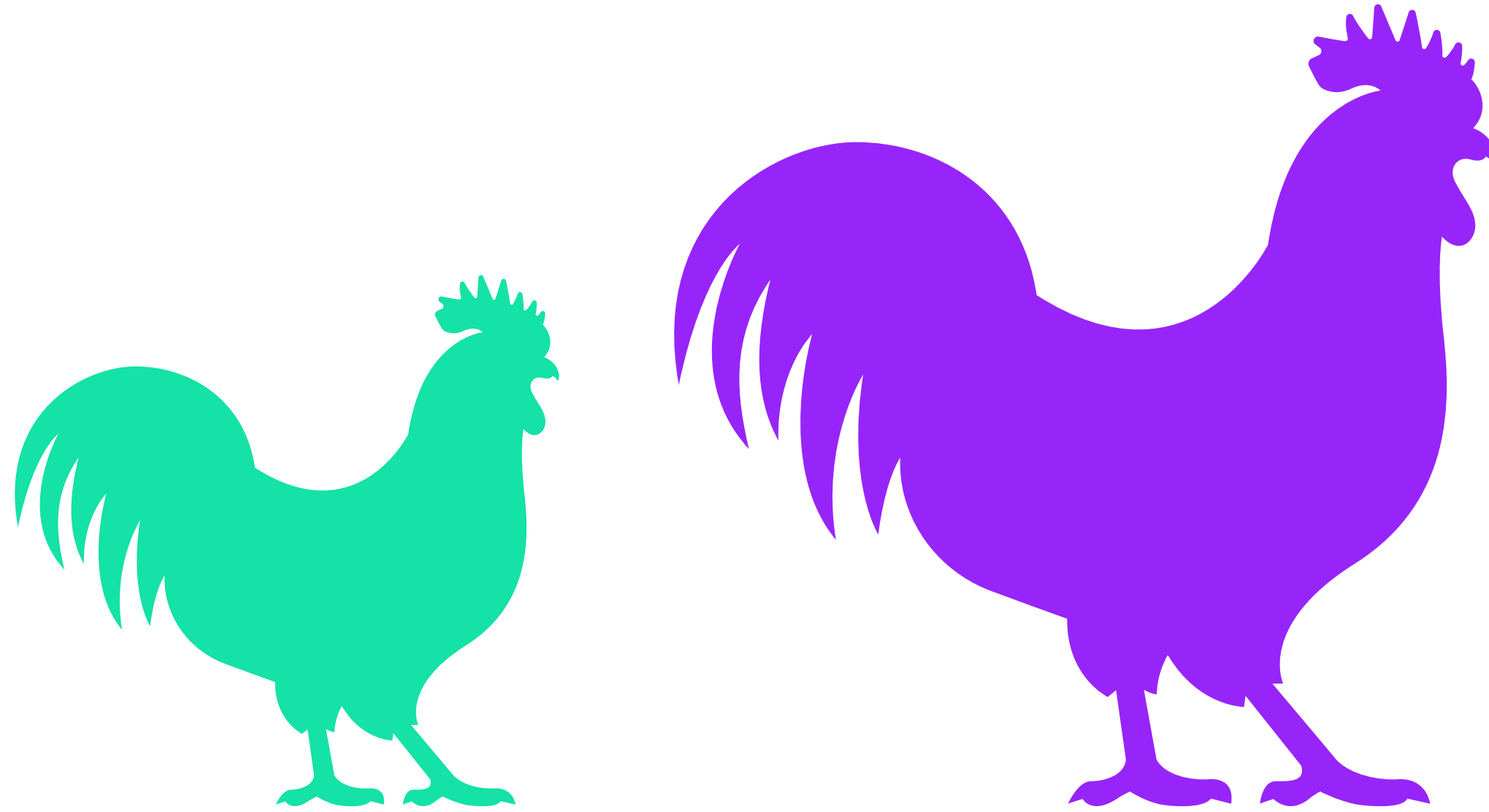- summary slides mid-stream and at the end

>45 min

- outline slide at the beginning of the talk
- 2–3 summary slides, including 1 at the end

Explain each slide completely

1. "to determine how XYZ, we…"

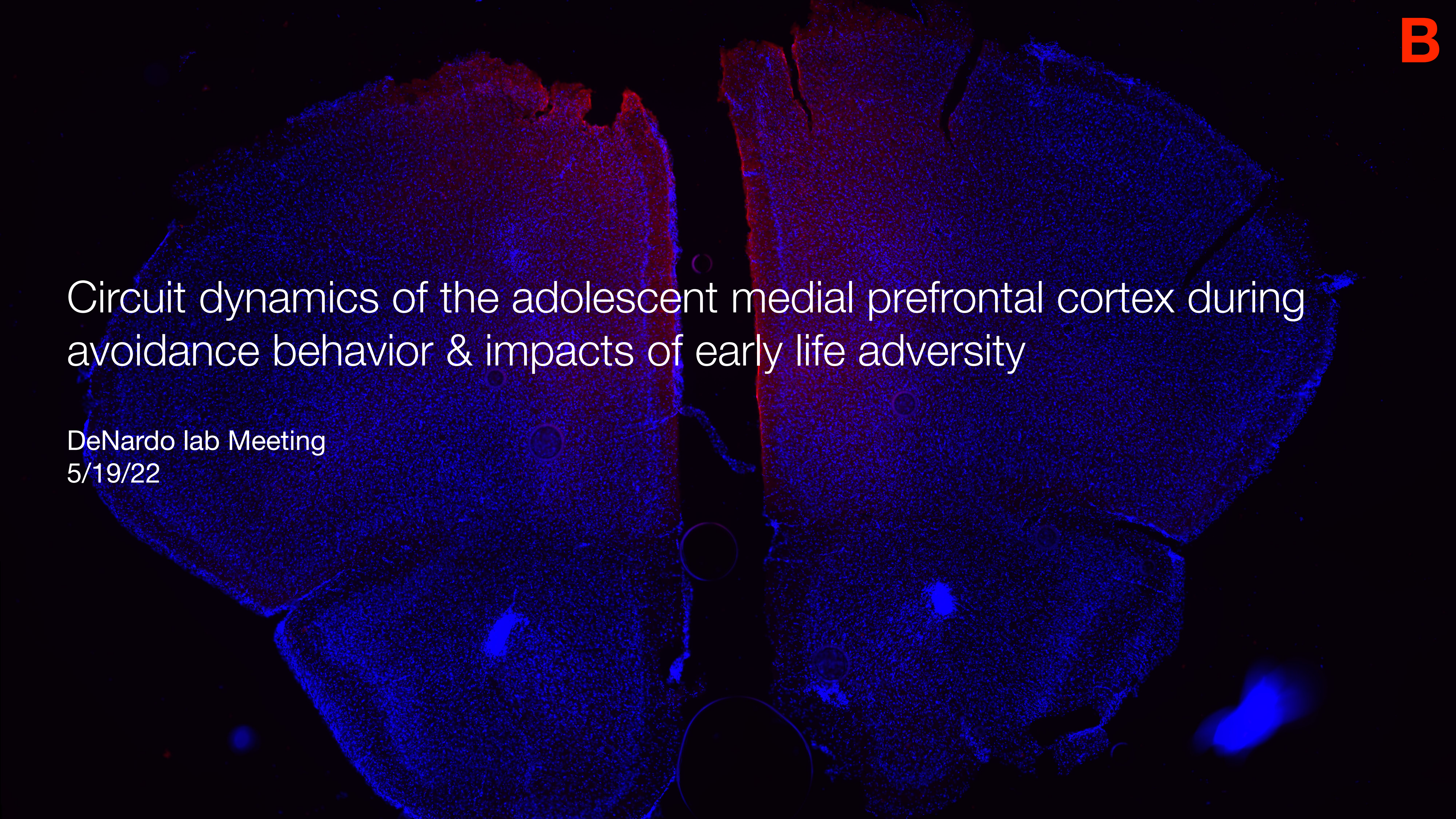2. "the green is X, the purple is X"

3. "here we plotted…"

4. "this showed that…" (state or write conclusion)

Wrapping up

1. Take home message: clearly and succinctly state the main findings

2. Future directions

3. Acknowledgements: people + funding sources

4. Final slide: graphical abstract that you leave up during questions

5. Hidden slides: have a list of slides that you can show in case questions come up (e.g. control experiments, tangentially related findings, etc)

6. Practice your talk! Practice at least 3x (once per day for preceding 3 days)

Circuit dynamics of the adolescent medial prefrontal cortex during avoidance behavior & impacts of early life adversity

DeNardo lab Meeting
5/19/22

B

Circuit dynamics of the adolescent medial prefrontal cortex during avoidance behavior & Impacts of early life adversity
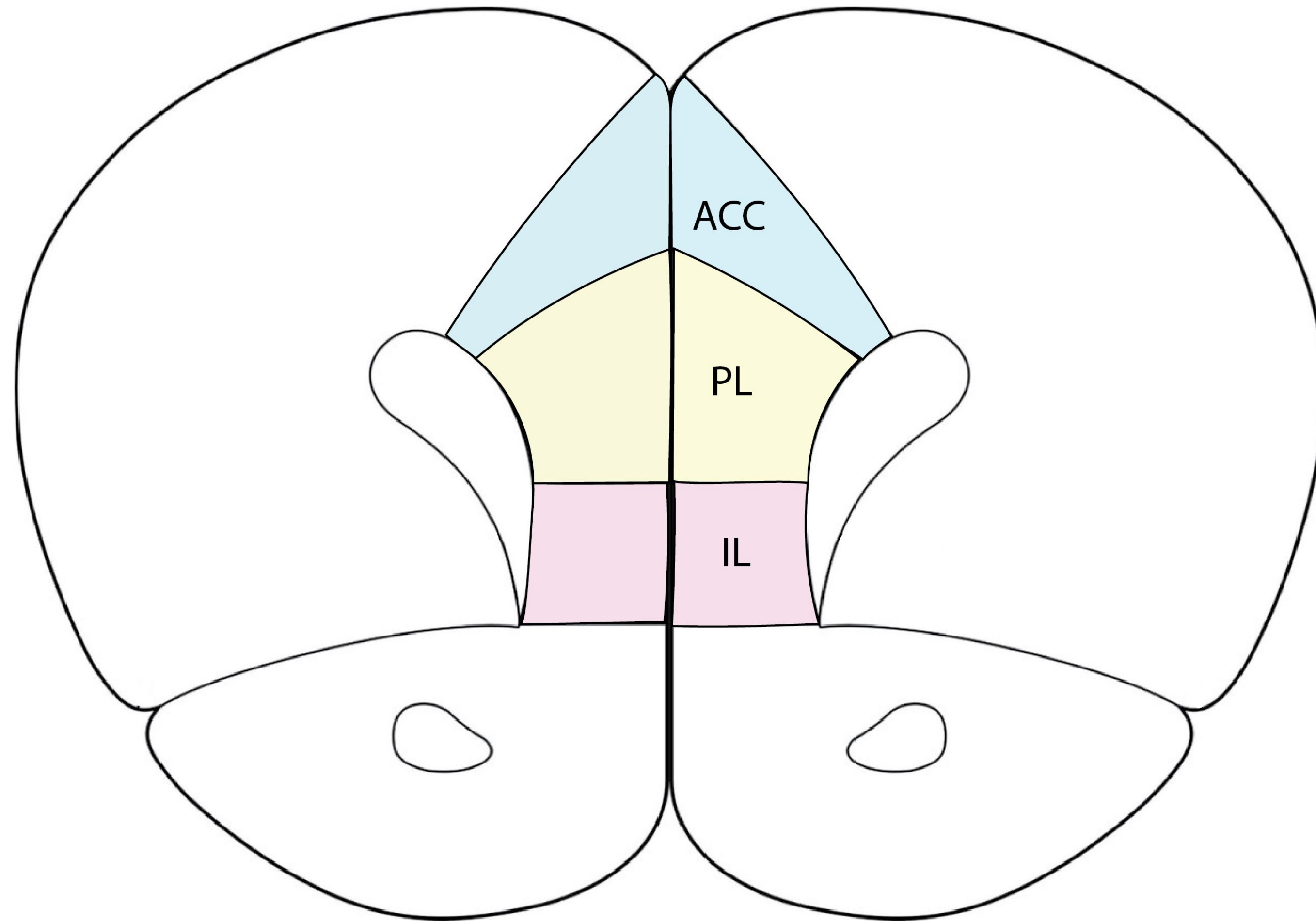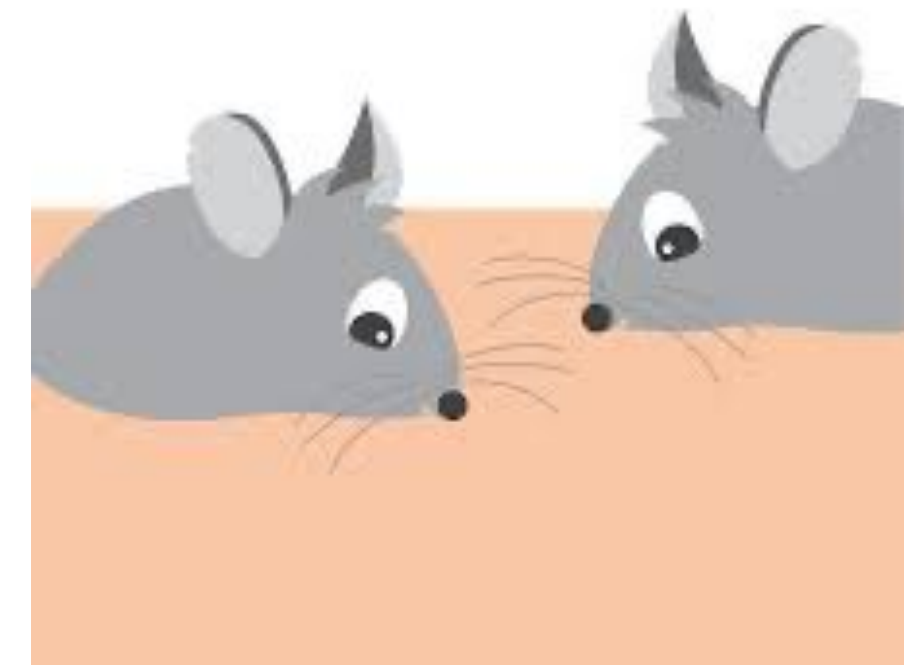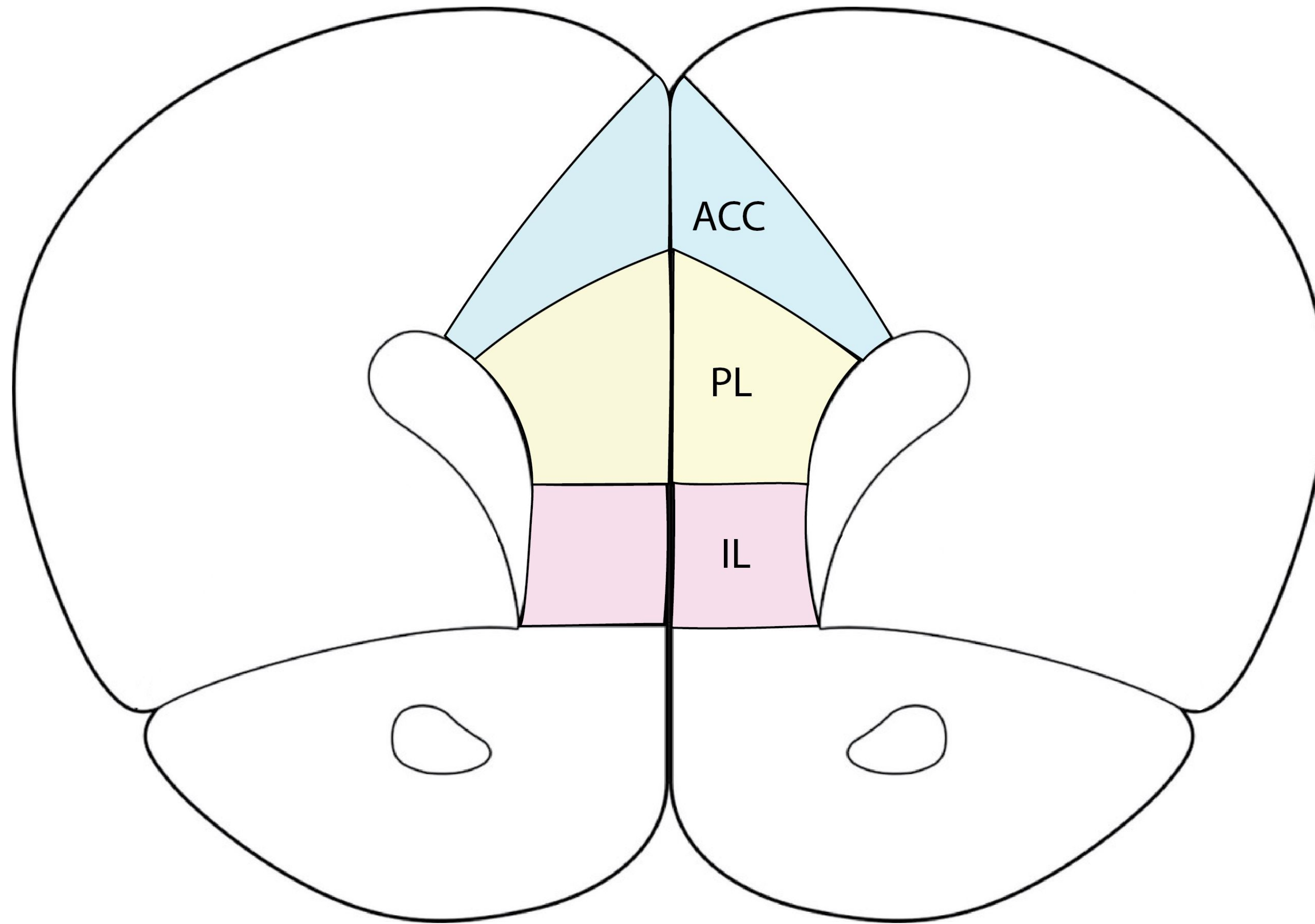
Caitlin Goodpaster

DeNardo lab Meeting
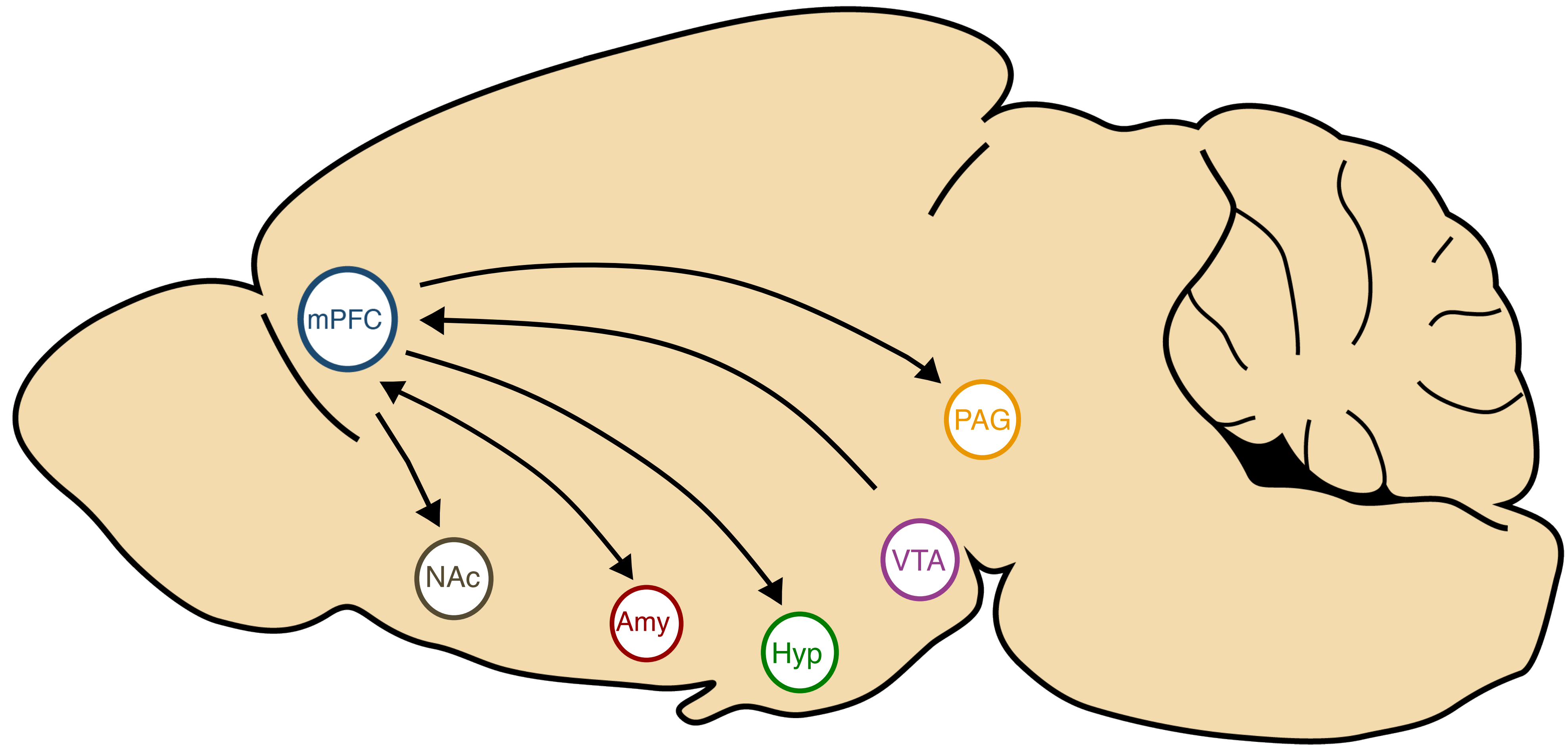5/19/22

Medial prefrontal cortex (mPFC)

ACC

PL

IL

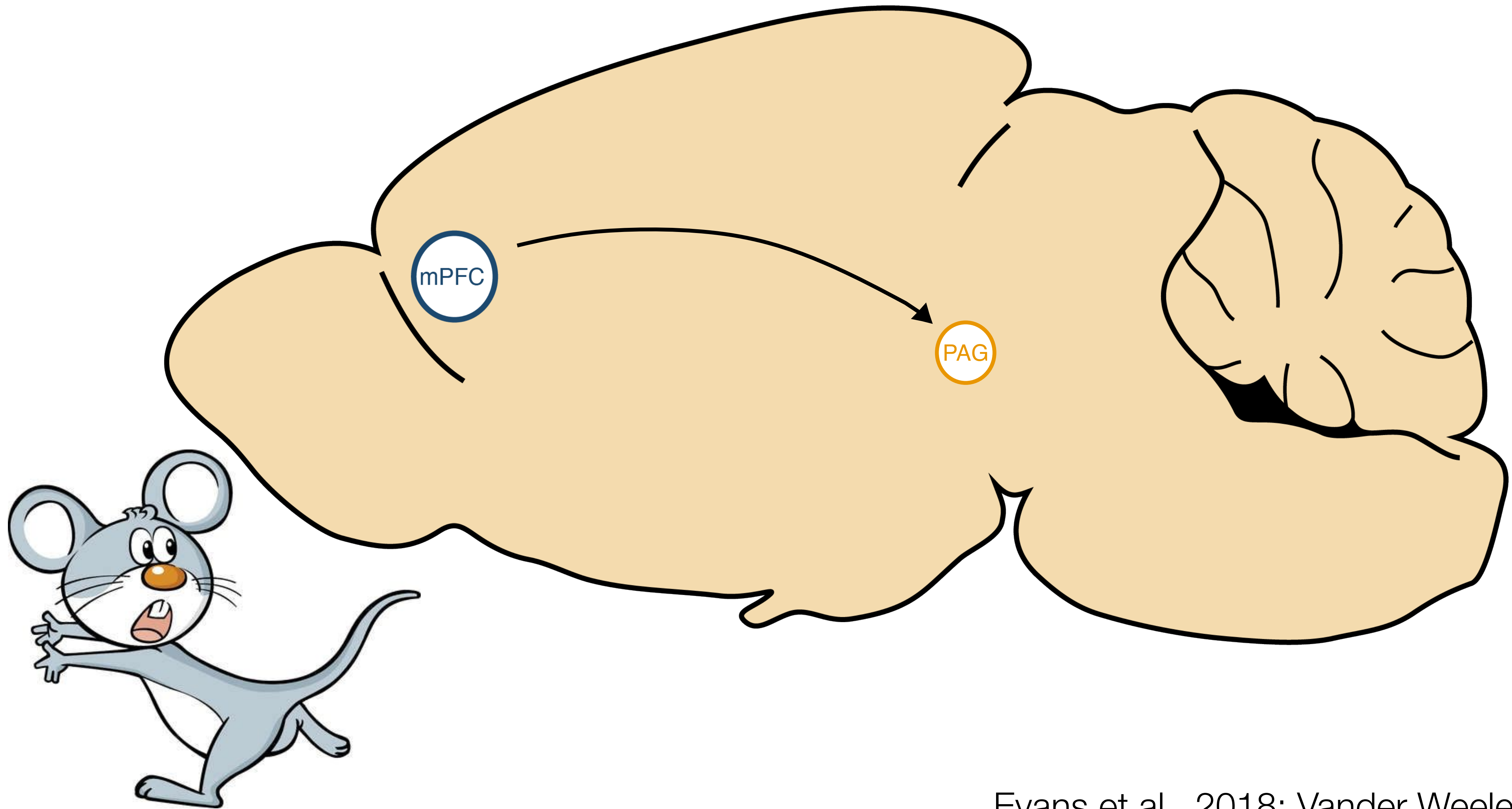Huang et al., 2020; Franklin et al., 2017; Eusten et al., 2012; Sule et al., 2012; Klune et al., 2021; Grunfield et al., 2018; Morriss et al., 2019

https://www.noldus.com/

Medial prefrontal cortex (mPFC)

ACC

PL

IL

Huang et al., 2020; Franklin et al., 2017; Eusten et al., 2012;
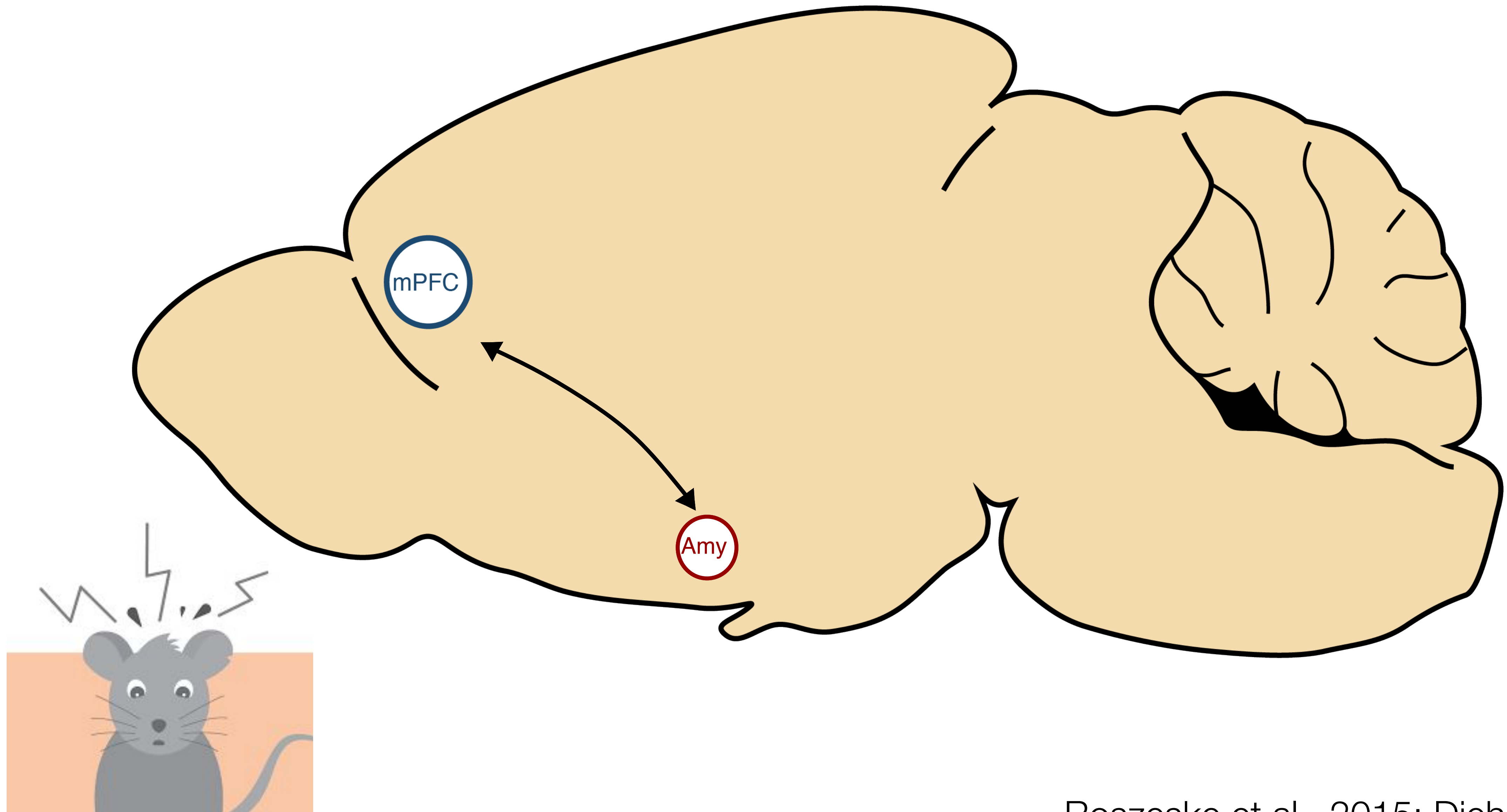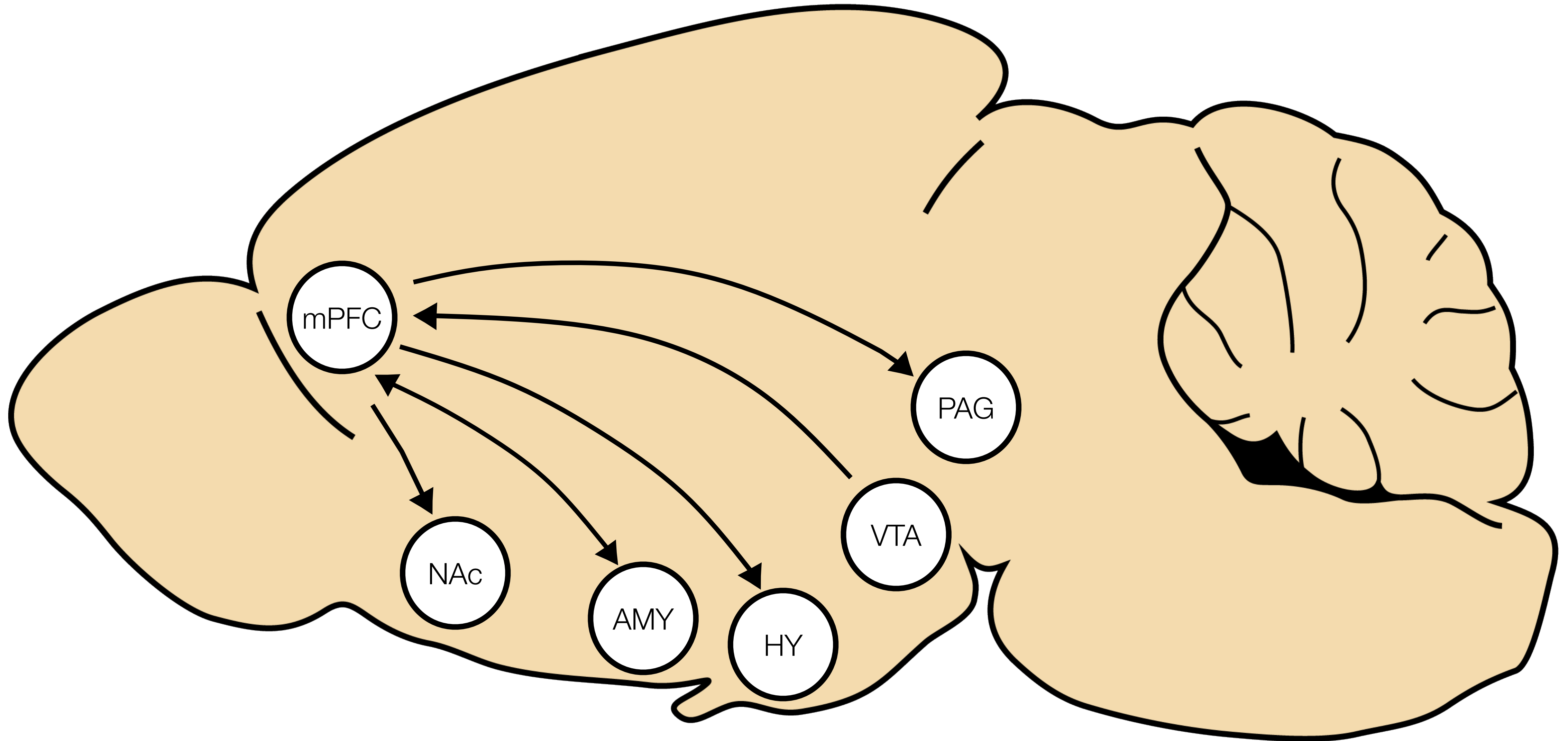Sule et al., 2012; Klune et al., 2021; Grunfield et al., 2018; Morriss et al., 2019

https://www.noldus.com/

B

Evans et al., 2018; Vander Weele et al., 2019

B

Roszeske et al., 2015; Diehl et al., 2020

mPFC is densely connected with distant brain regions

A

mPFC–Amygdala connection controls emotional learning and threat responding

A

Roszeske et al., 2015; Diehl et al., 2020
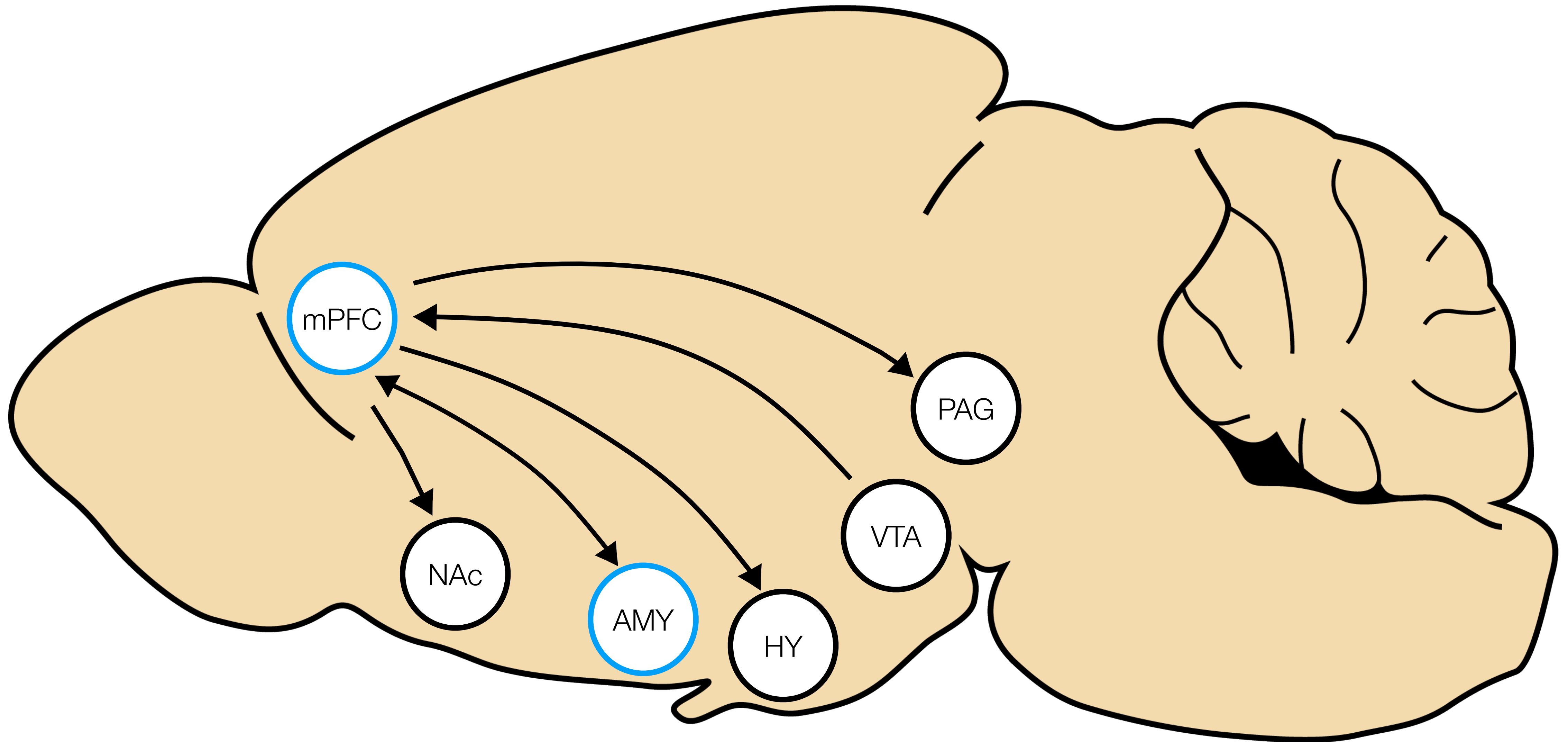
The mPFC undergoes prolonged maturation
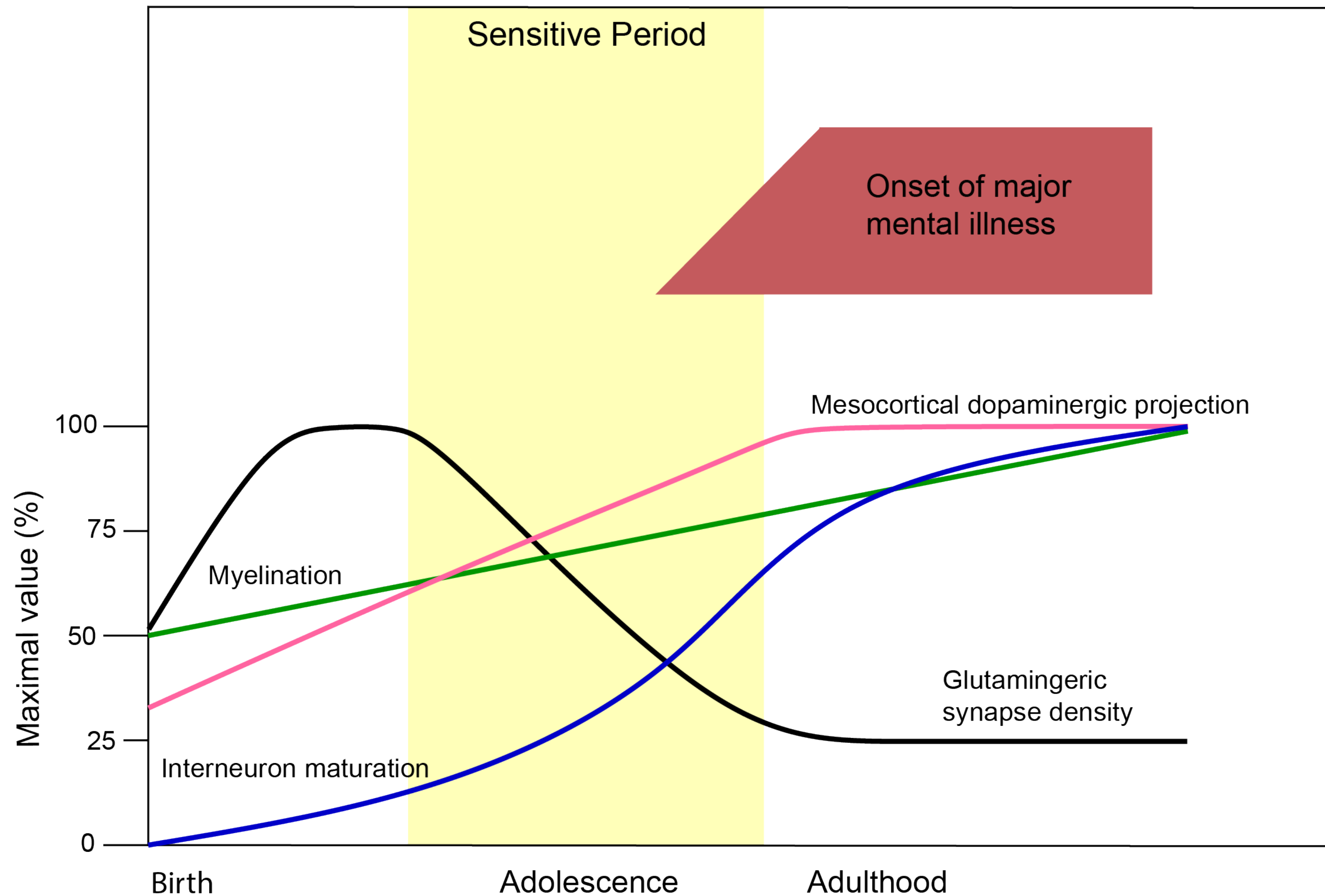
Lockhart & Niwa, 2018

mPFC has a prolonged development

Figure labels visible: Sensitive period; Onset of major mental illness; Mesocortical dopaminergic projection; Myelination; Glutamingeric synapse density; Interneuron maturation; Birth; Adolescence; Adulthood

Depression

Schizophrenia

Substance Abuse

Eating Disorders

Anxiety

Lockhart & Niwa, 2018

mPFC has a prolonged development

Sensitive period

Onset of major mental illness

Mesocortical dopaminergic projection

Myelination

Glutamingeric synapse density

Interneuron maturation

Birth   Adolescence   Adulthood

Depression

Schizophrenia

Substance Abuse

Eating Disorders

Anxiety

Lockhart & Niwa, 2018

Early life adversity (ELA) associated with mental illness

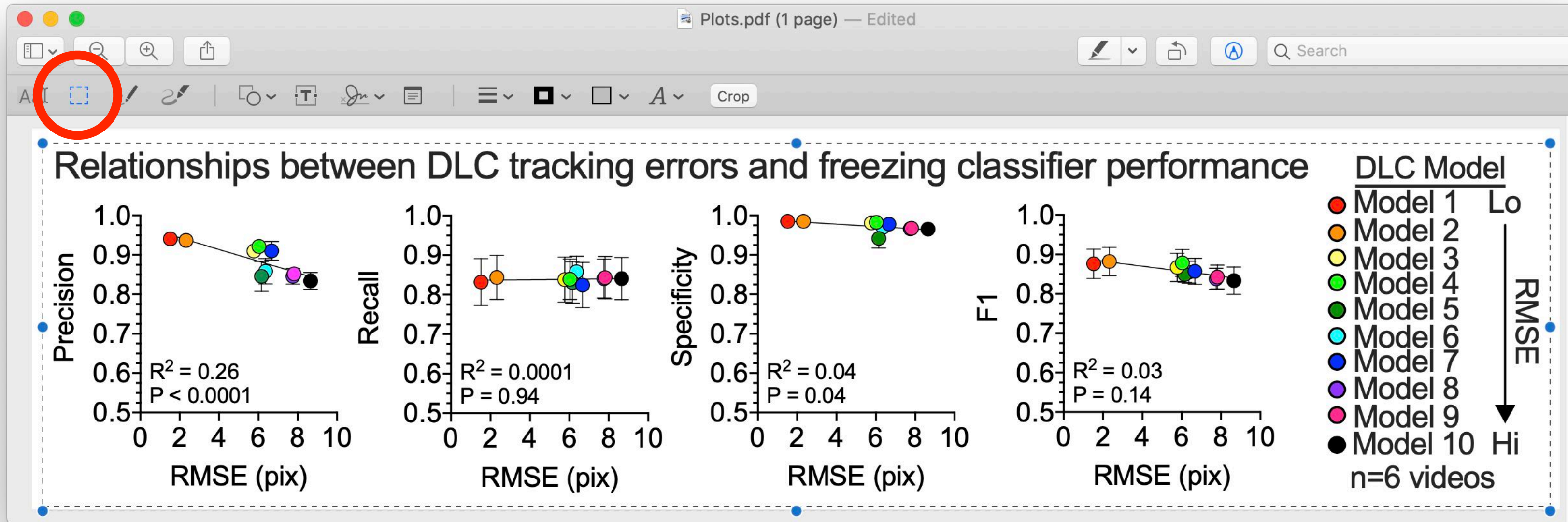Median Age at Onset of Psychiatric Disorders Across Development

Cumulative ACEs and Mental Health
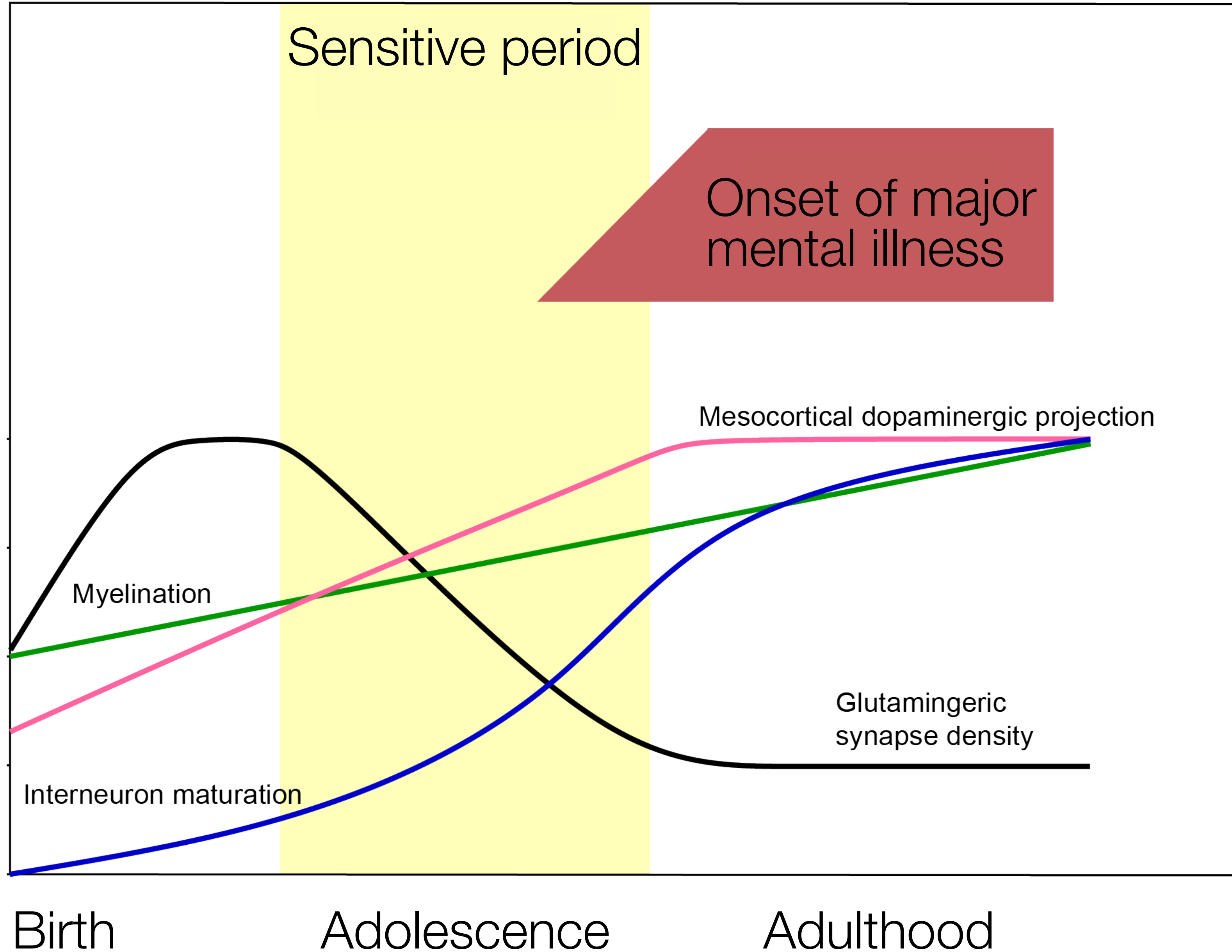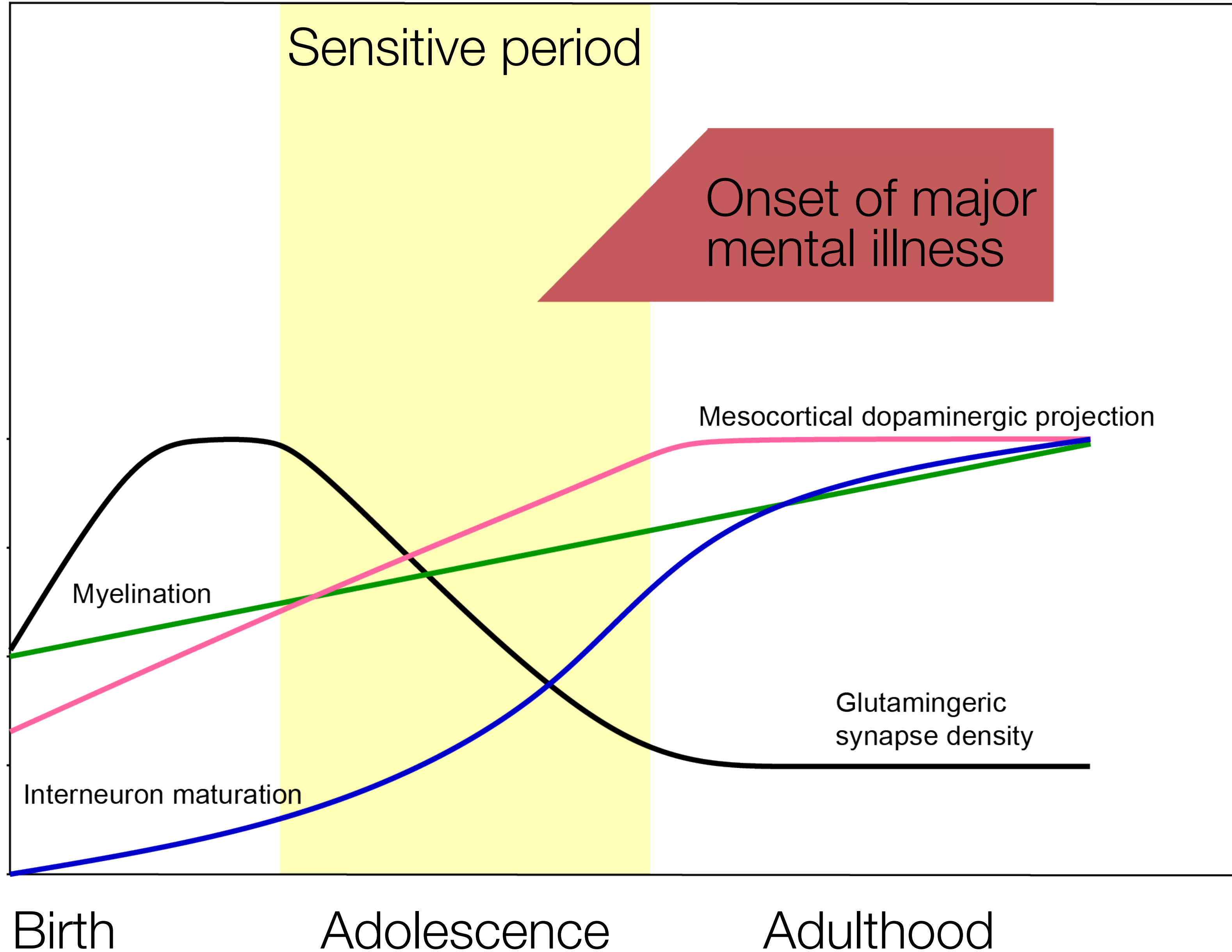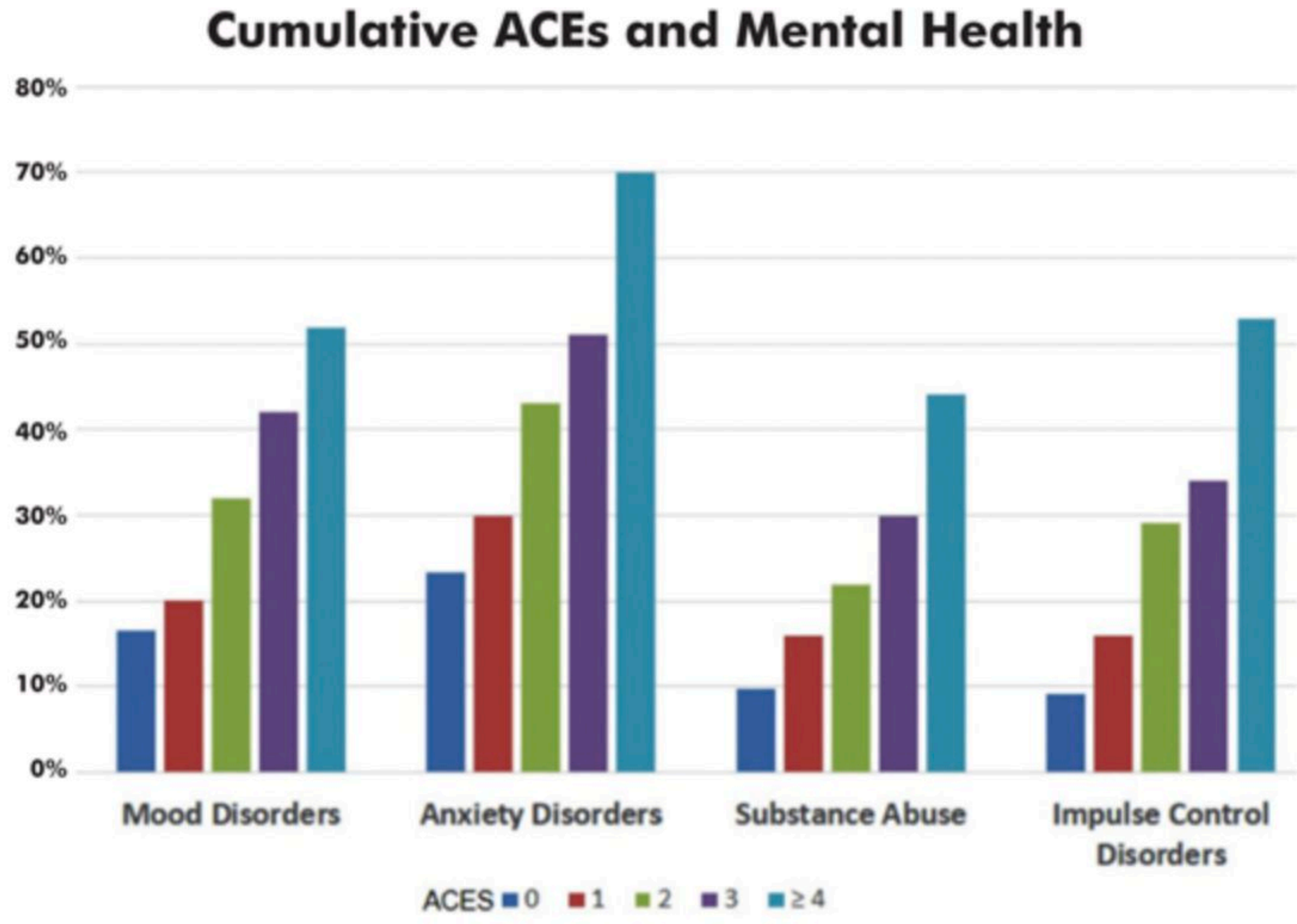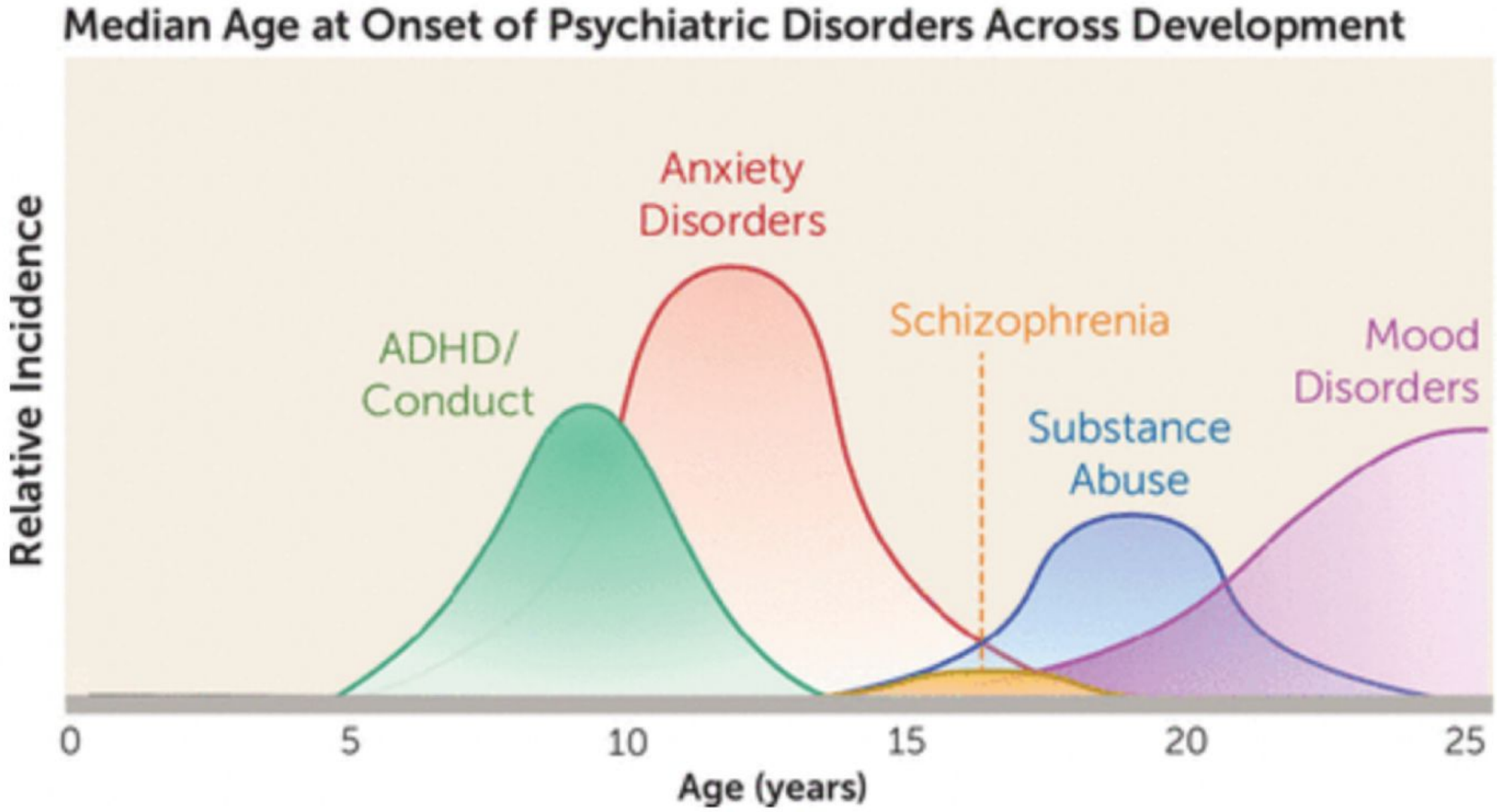
Putman et al., 2015; Meyer & Lee, 2019

Early life adversity (ELA) associated with mental illness
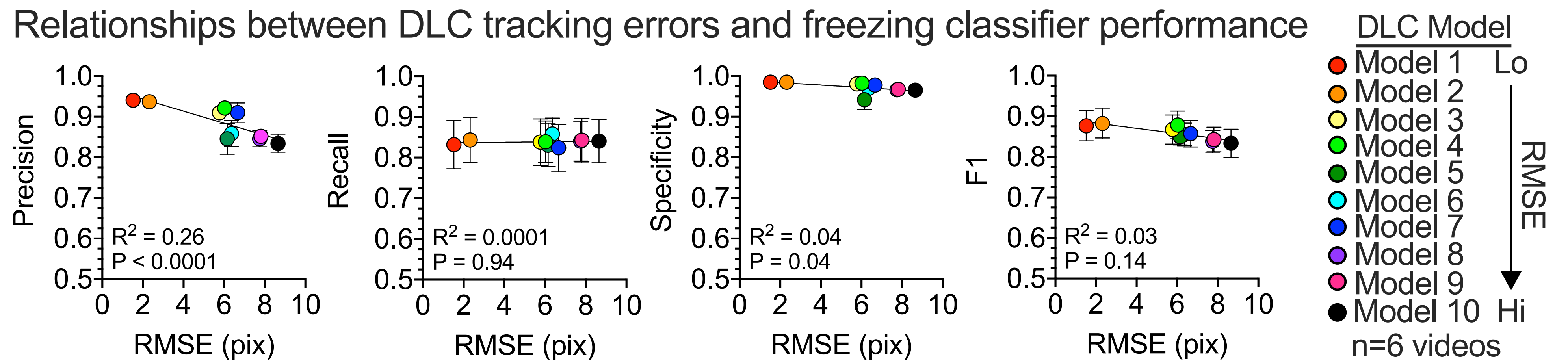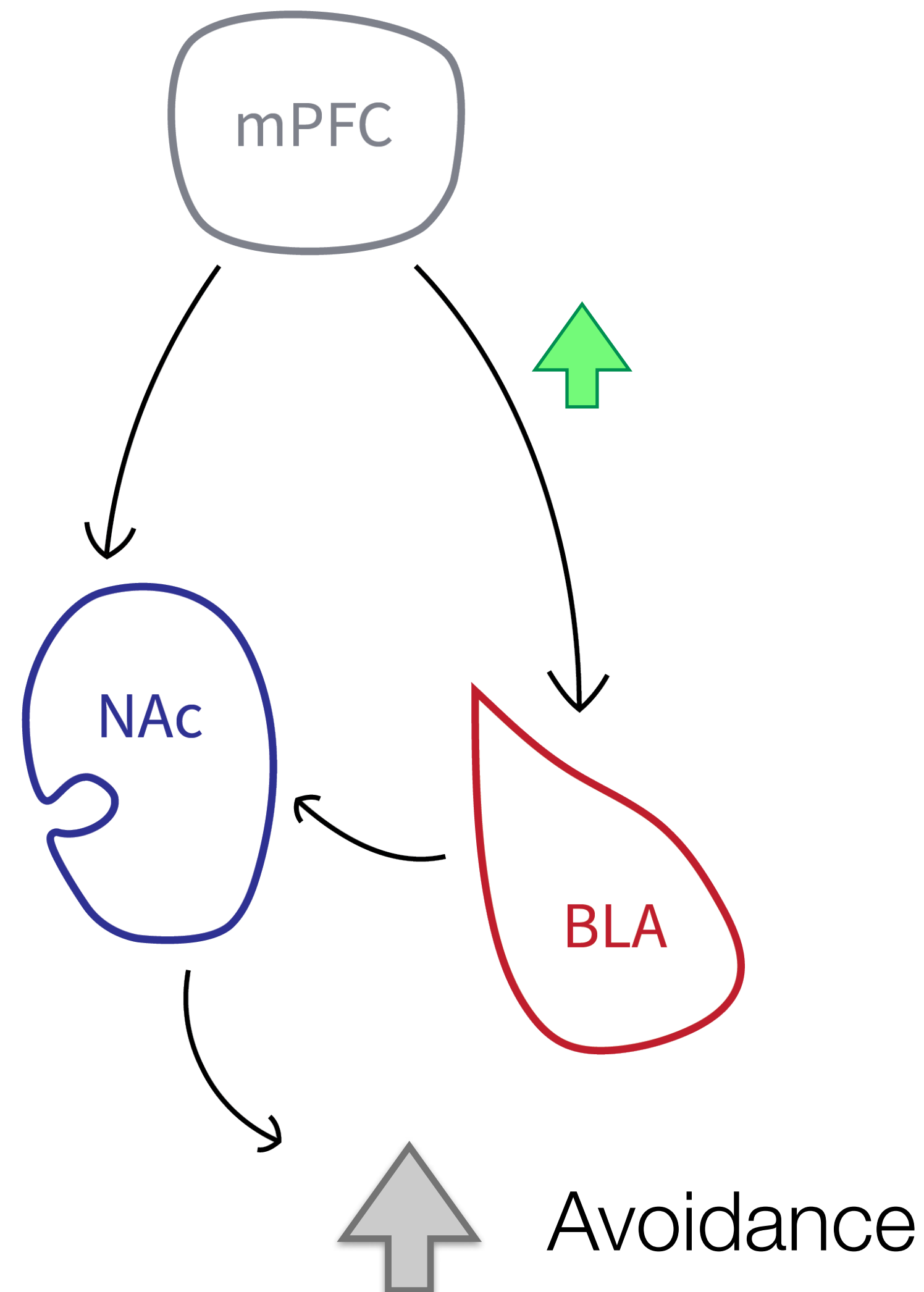
A

Putman et al., 2015; Meyer & Lee, 2019
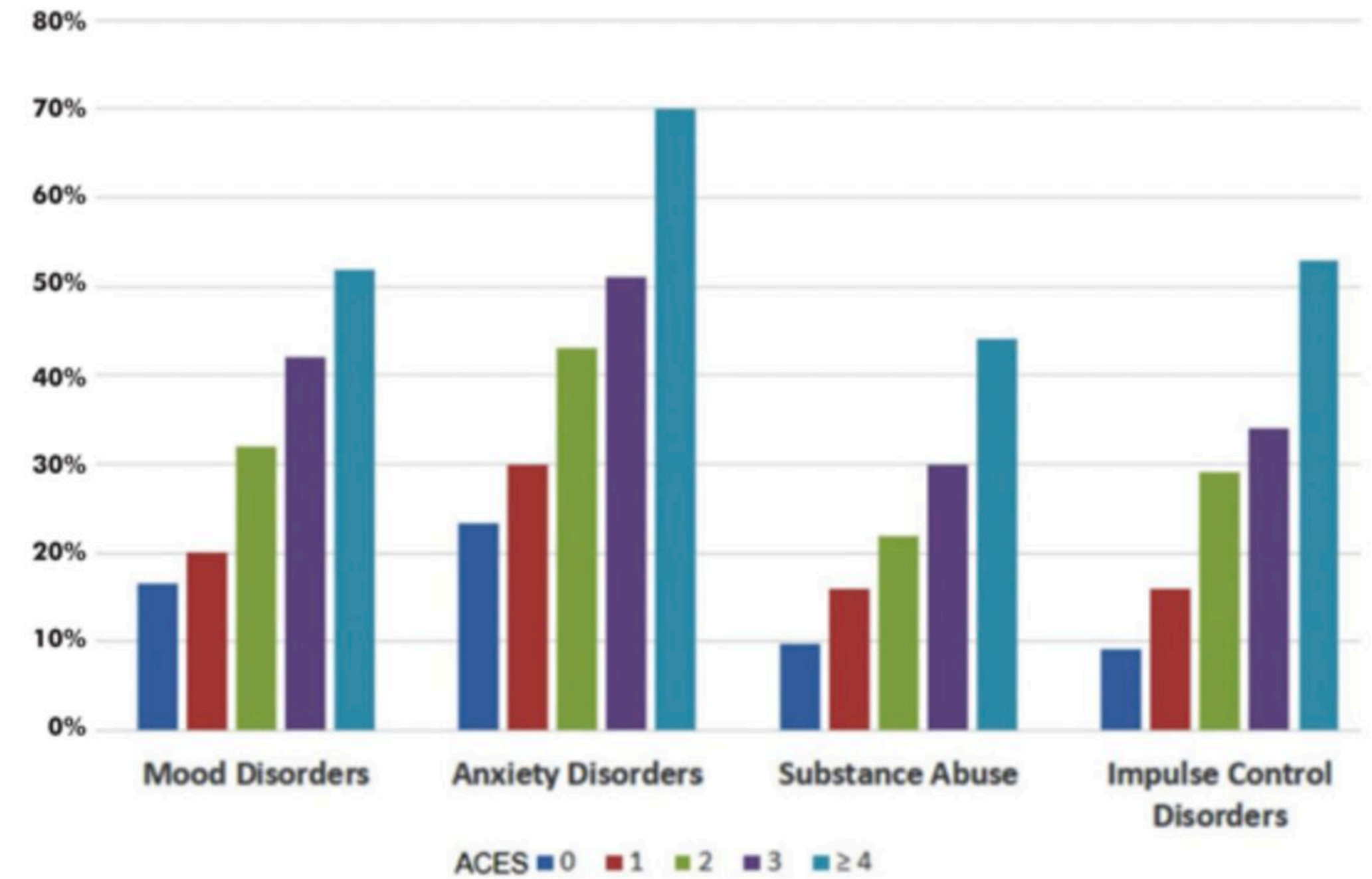
Aside: How to put high resolution images in your slides

Zoomed in as much as possible (fill your computer screen)
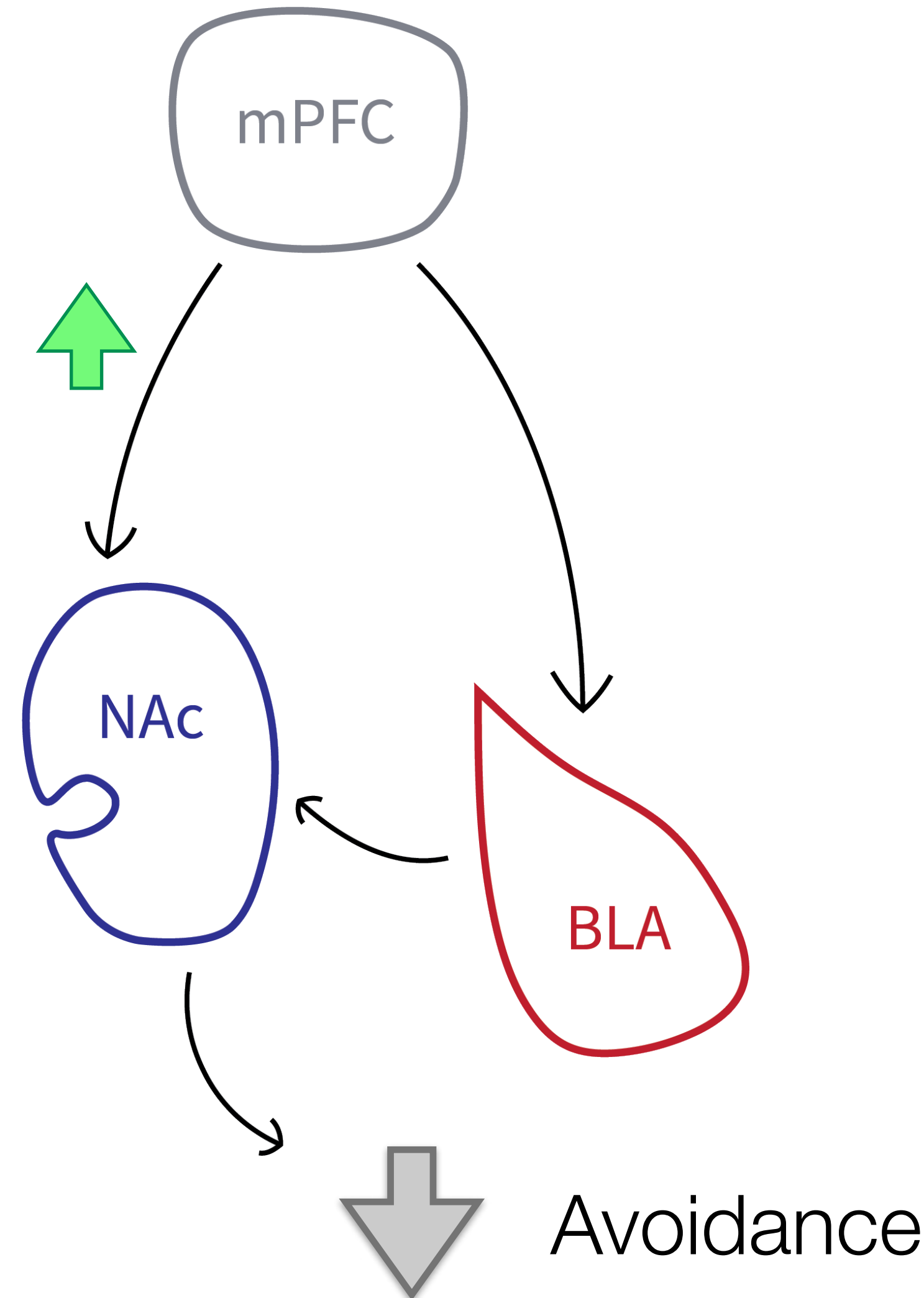
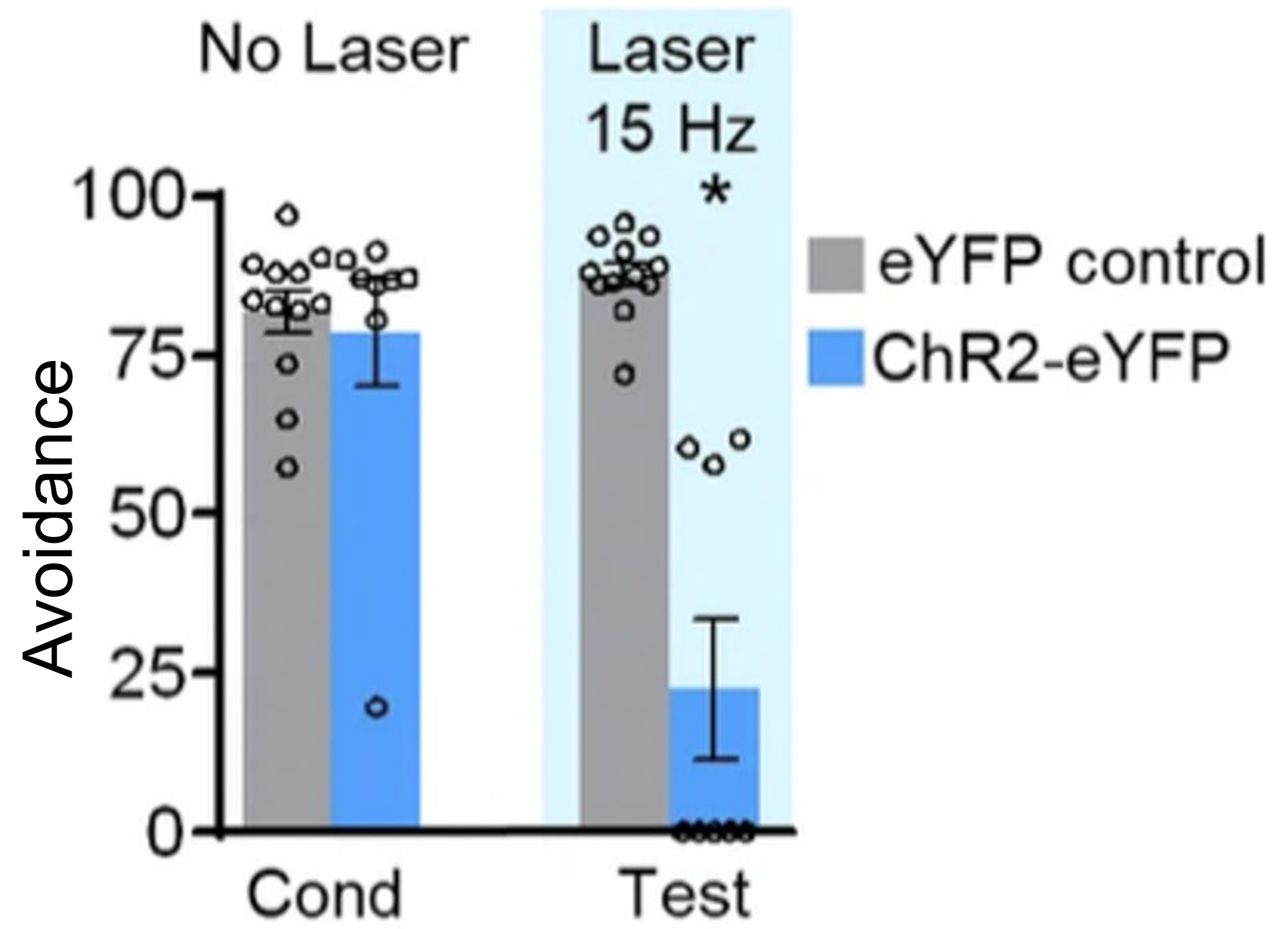# mPFC projections bidirectionally control avoidance behavior

Diehl et al., 2020, Bravo-Rivera et al., 2014; Bravo-Rivera et al., 2015; Martinez- Rivera et al., 2019

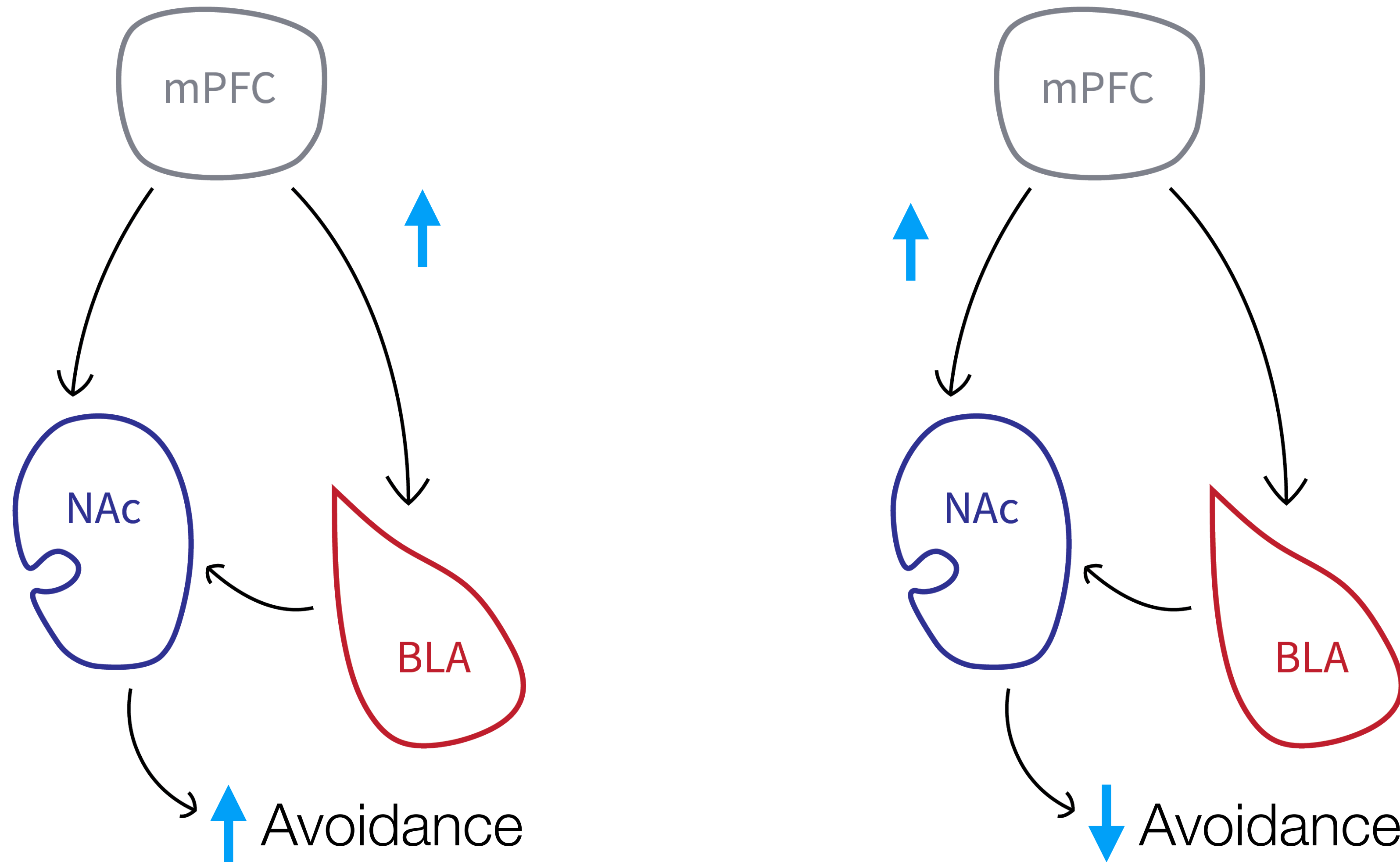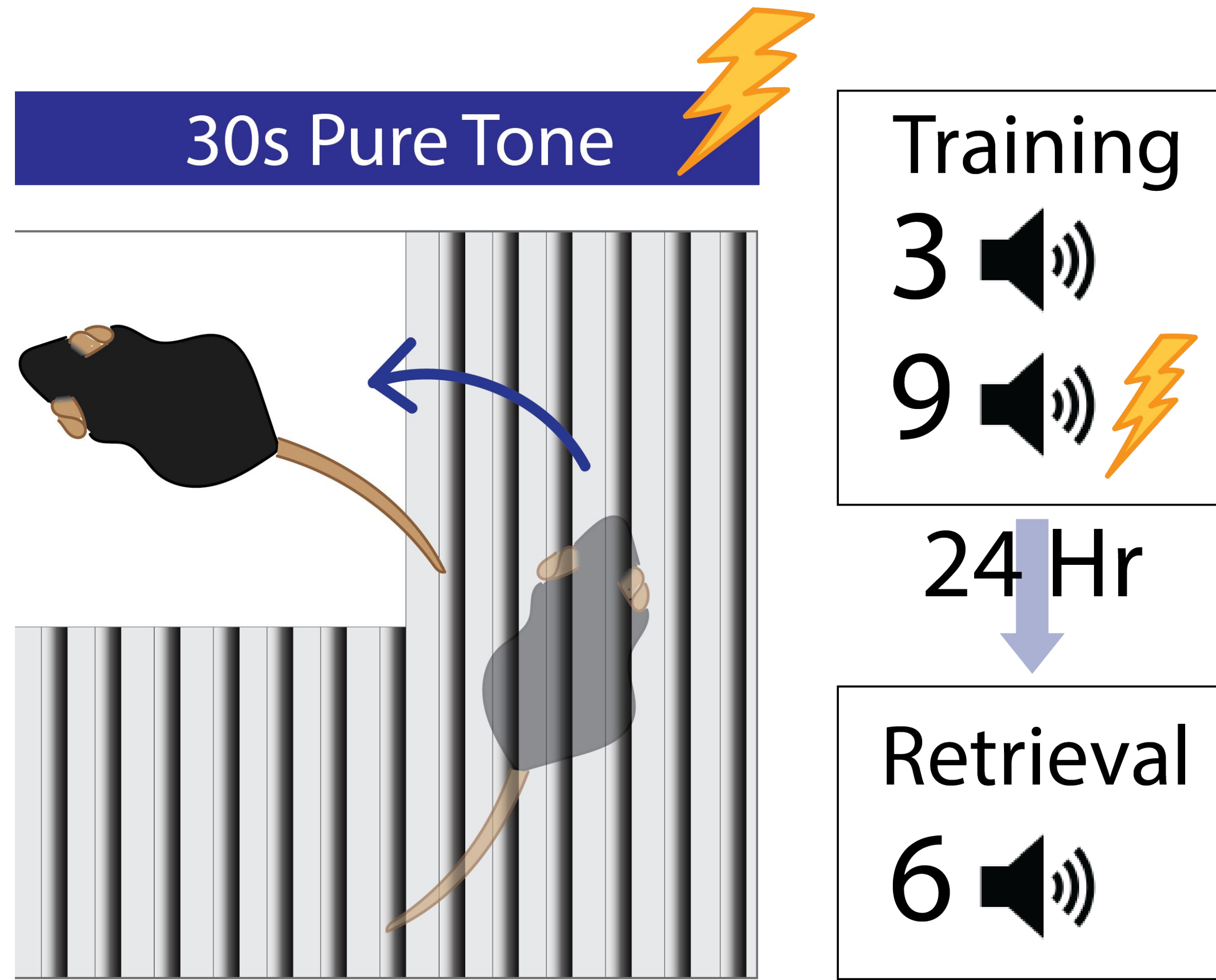# mPFC projections bidirectionally control avoidance behavior
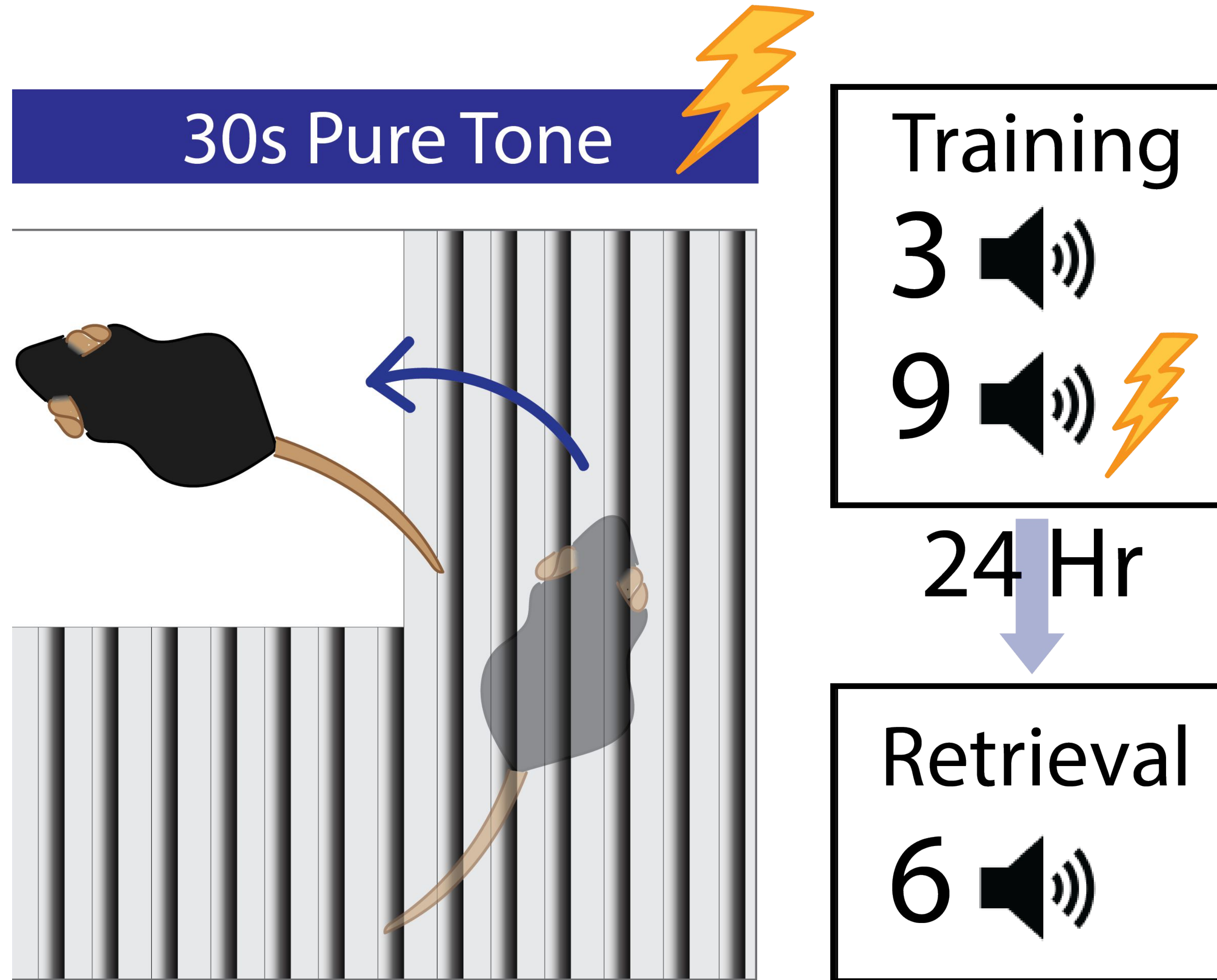

mPFC➔NAc stimulation

Diehl et al., 2020, Bravo-Rivera et al., 2014; Bravo-Rivera et al., 2015; Martinez- Rivera et al., 2019

mPFC projections bidirectionally control avoidance behavior

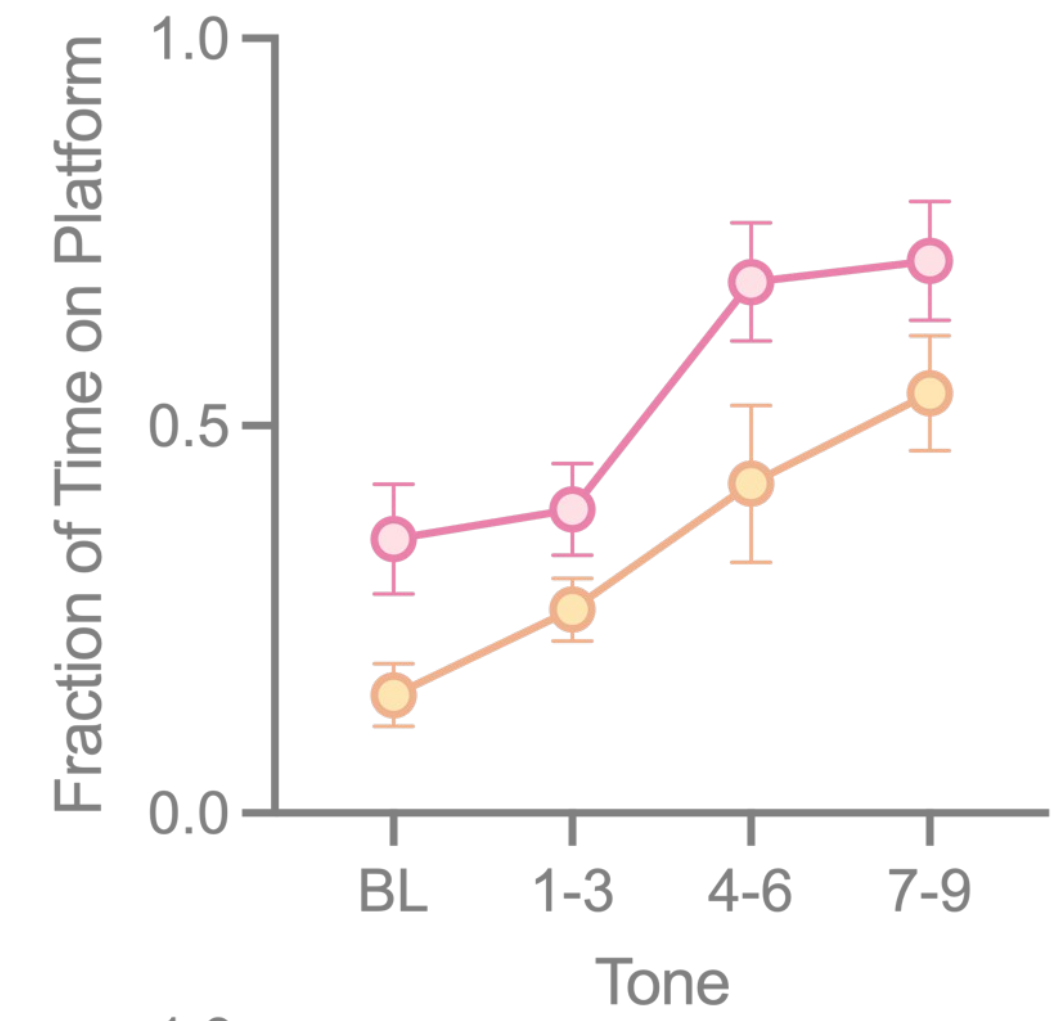Diehl et al., 2020, Bravo-Rivera et al., 2014; Bravo-Rivera et al., 2015; Martinez- Rivera et al., 2019

B

Adapted Platform Mediated Avoidance (PMA) task

30s Pure Tone

Training

3 🔊

9 🔊 ⚡

24 Hr

Retrieval

6 🔊

Platform Mediated Avoidance (PMA)

A

30s Pure Tone

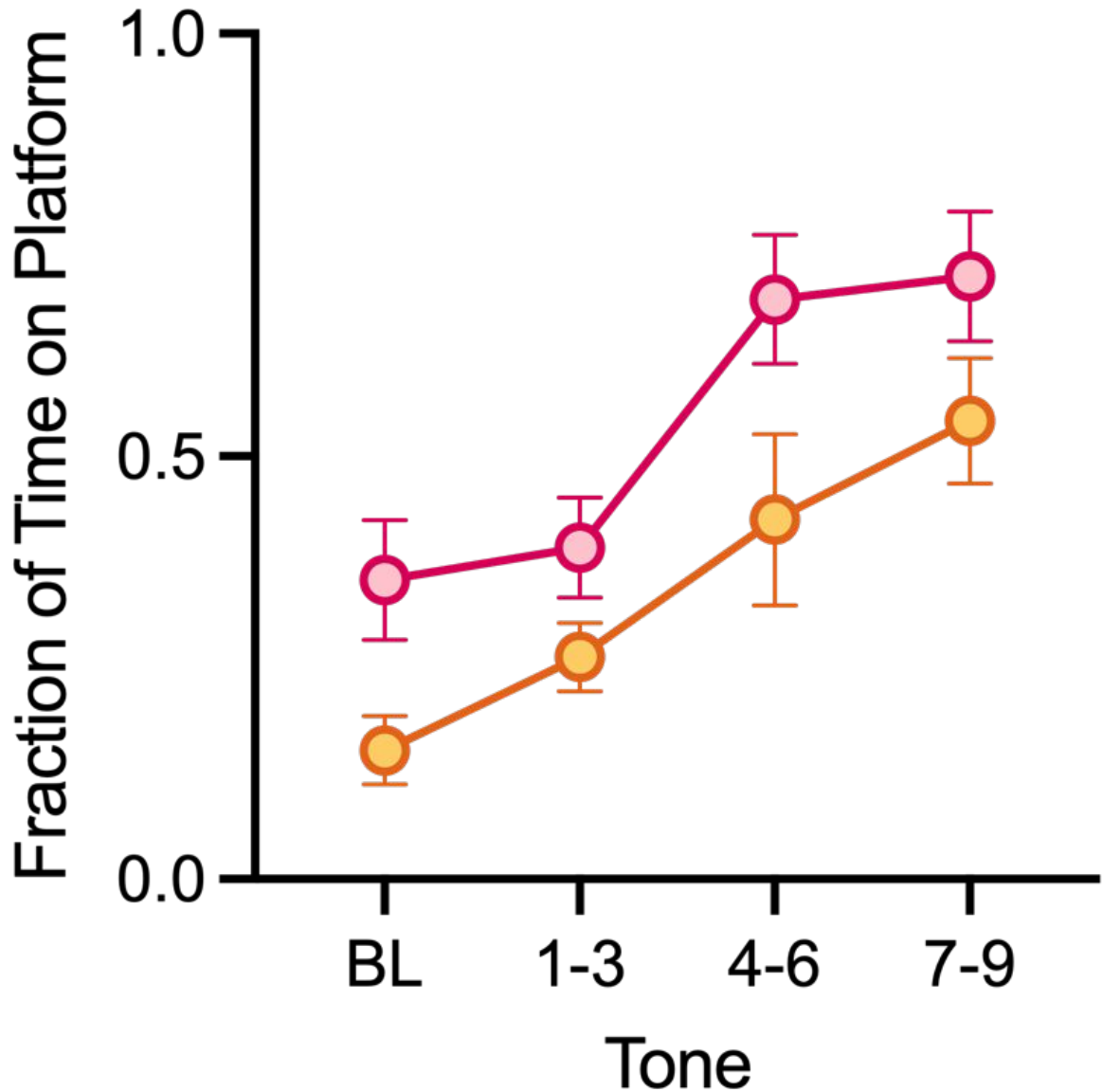Training
3 🔊
9 🔊 ⚡

24 Hr

Retrieval
6 🔊

PMA behavior in adolescent and adult mice
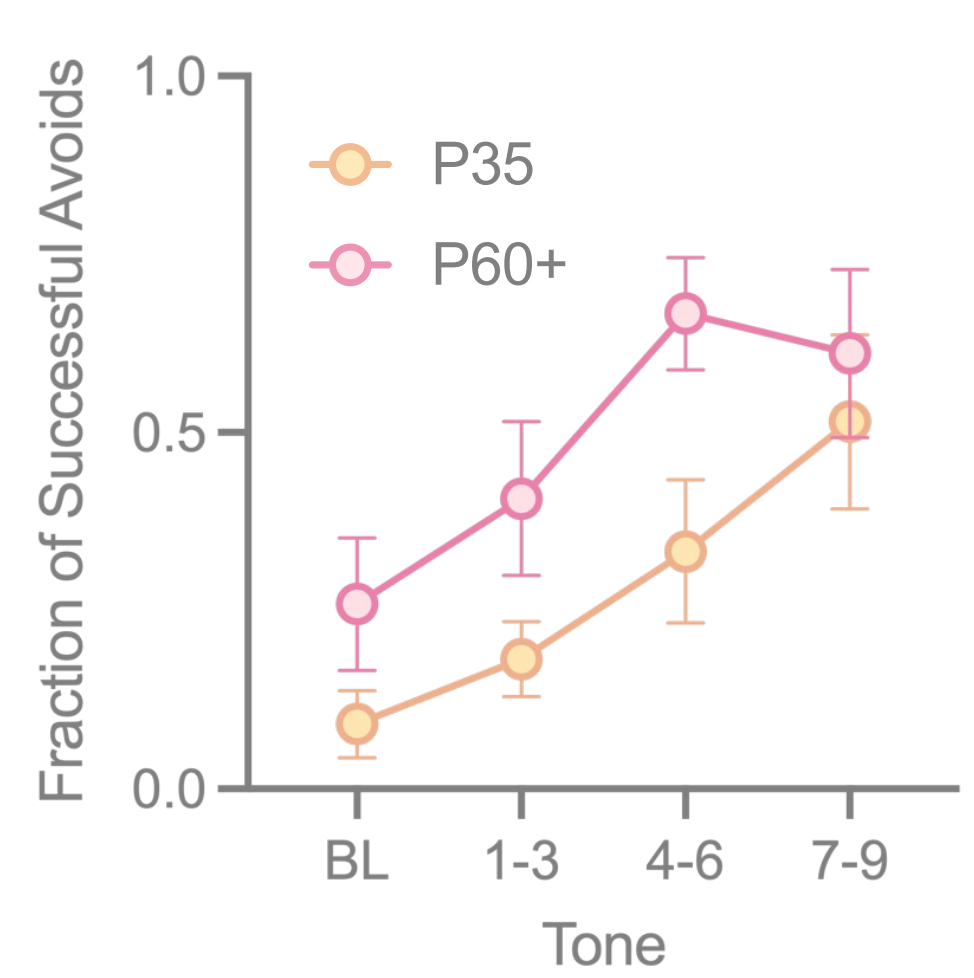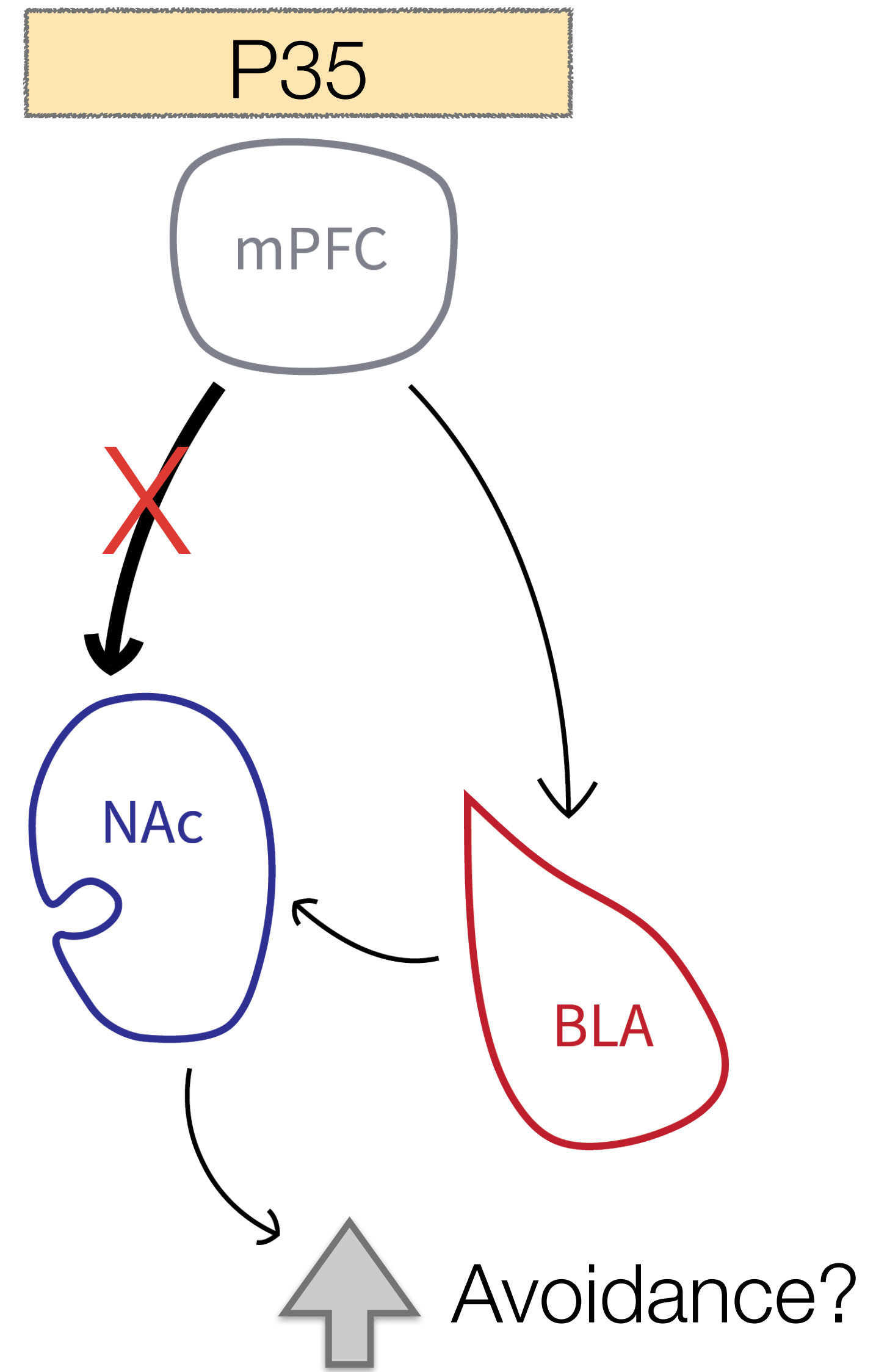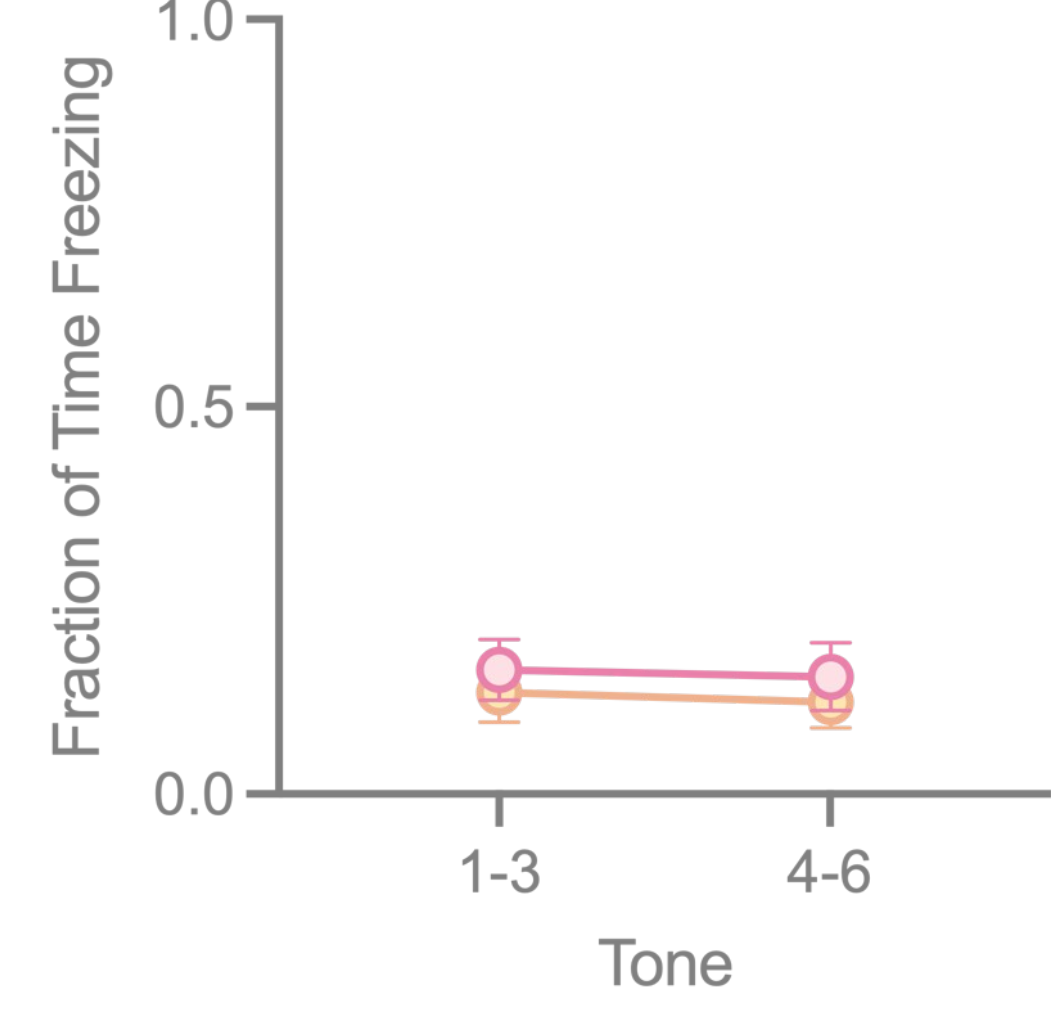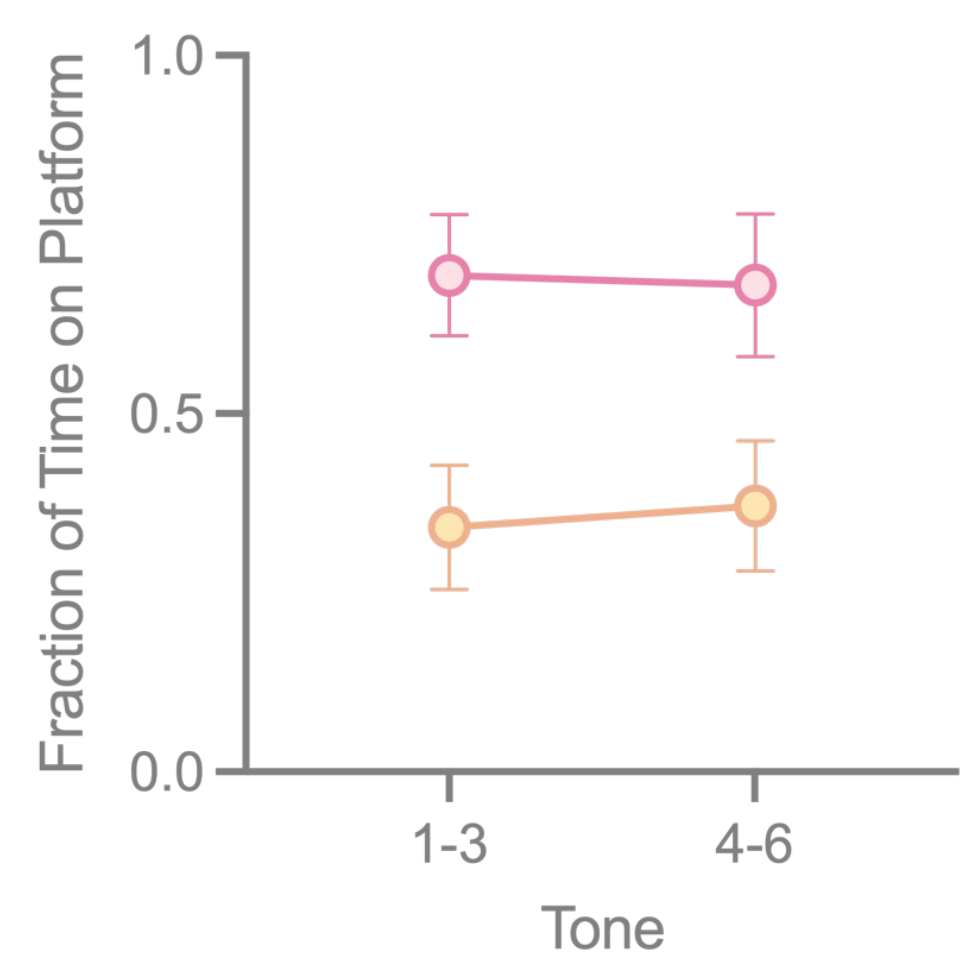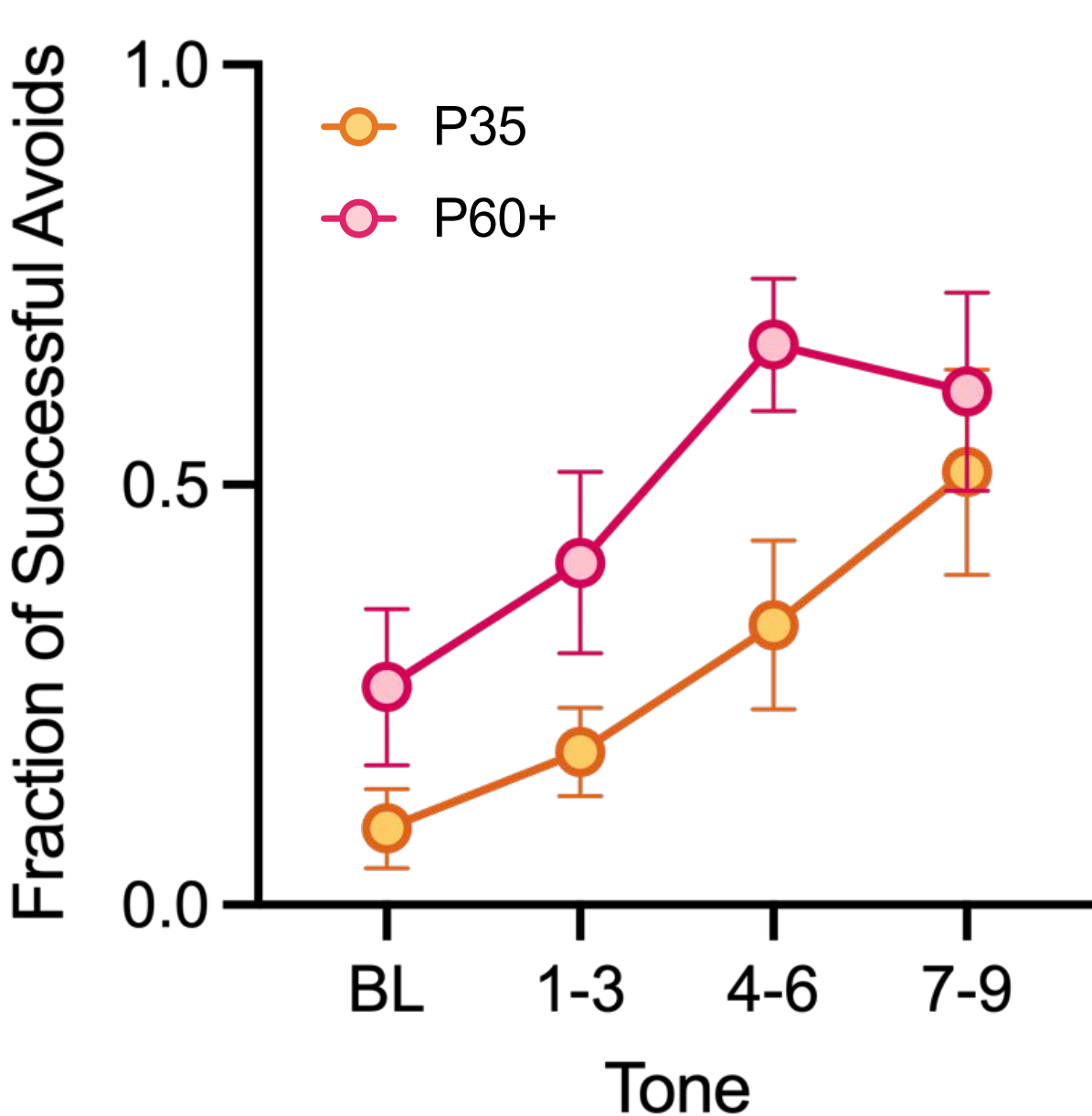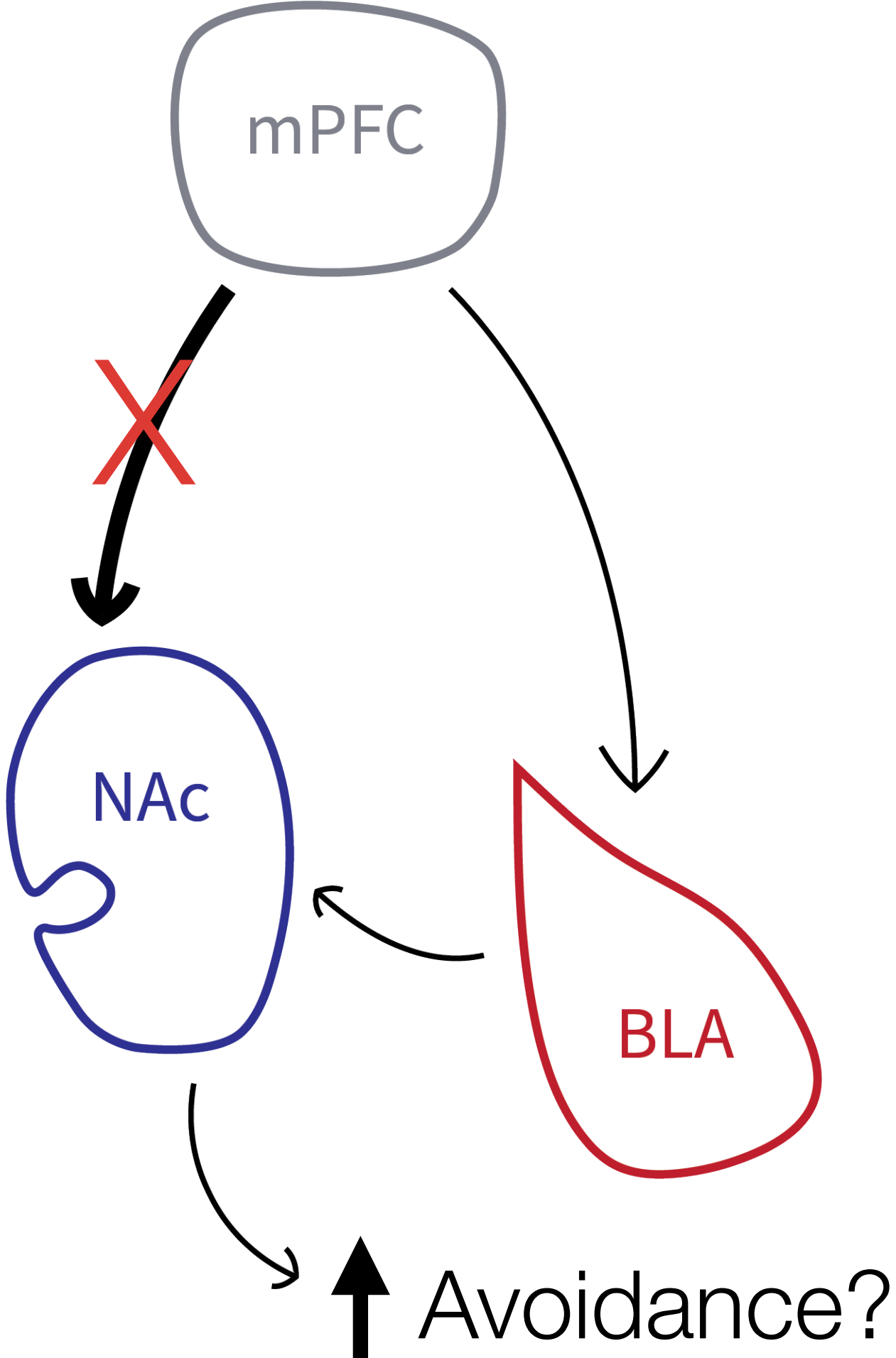
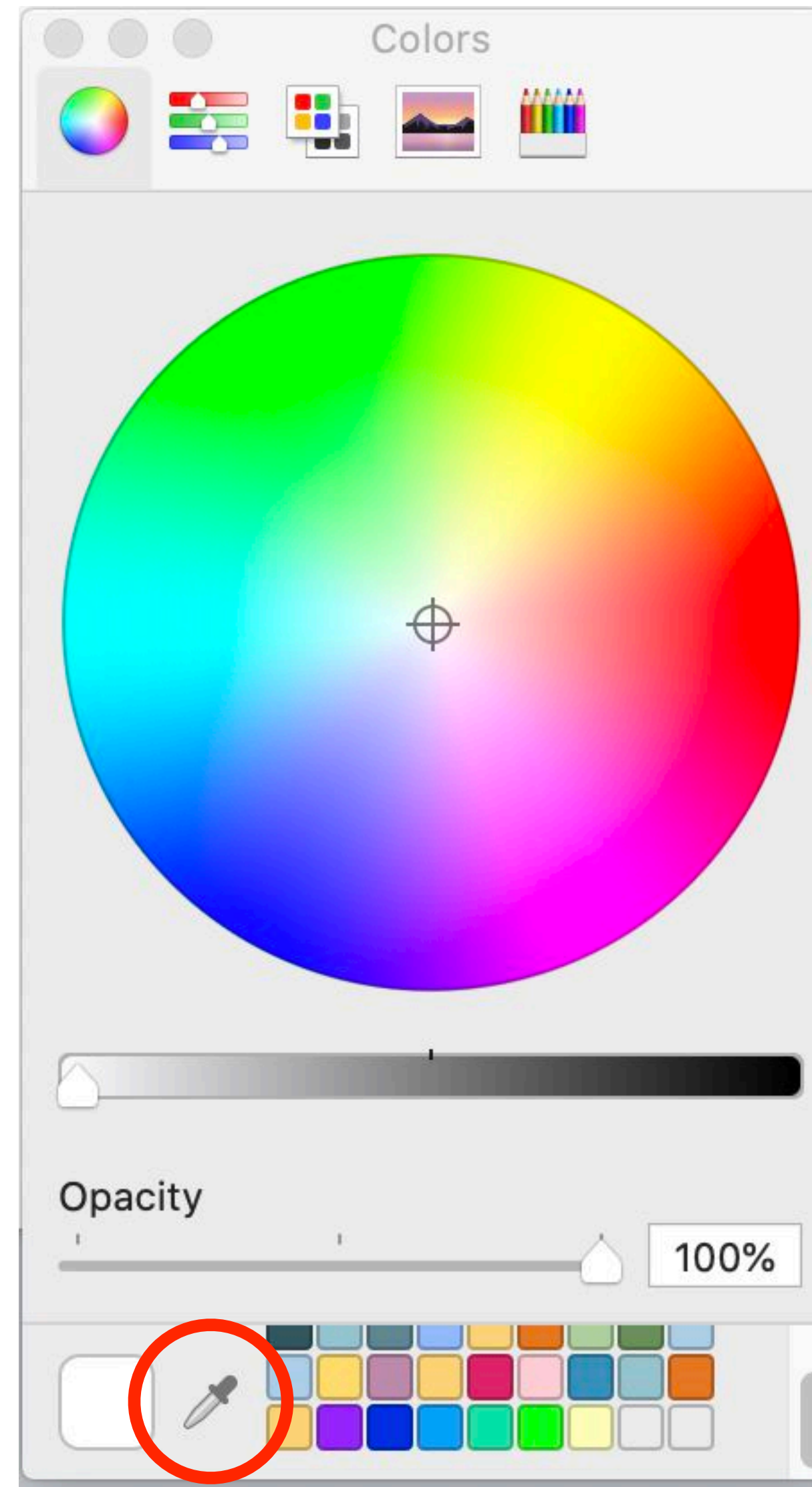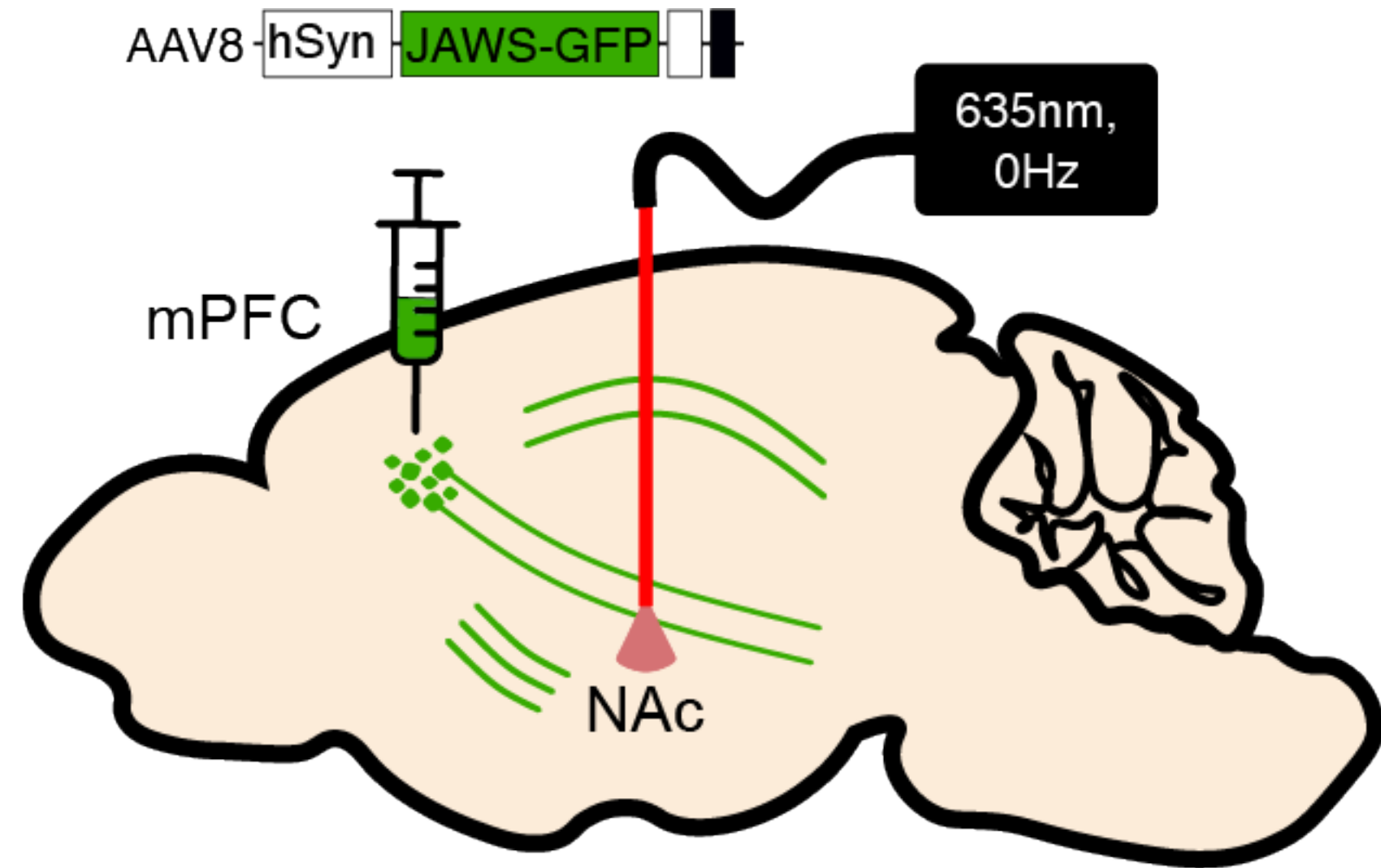# Adolescent mice have low levels of threat avoidance

A

Cassandra Klune
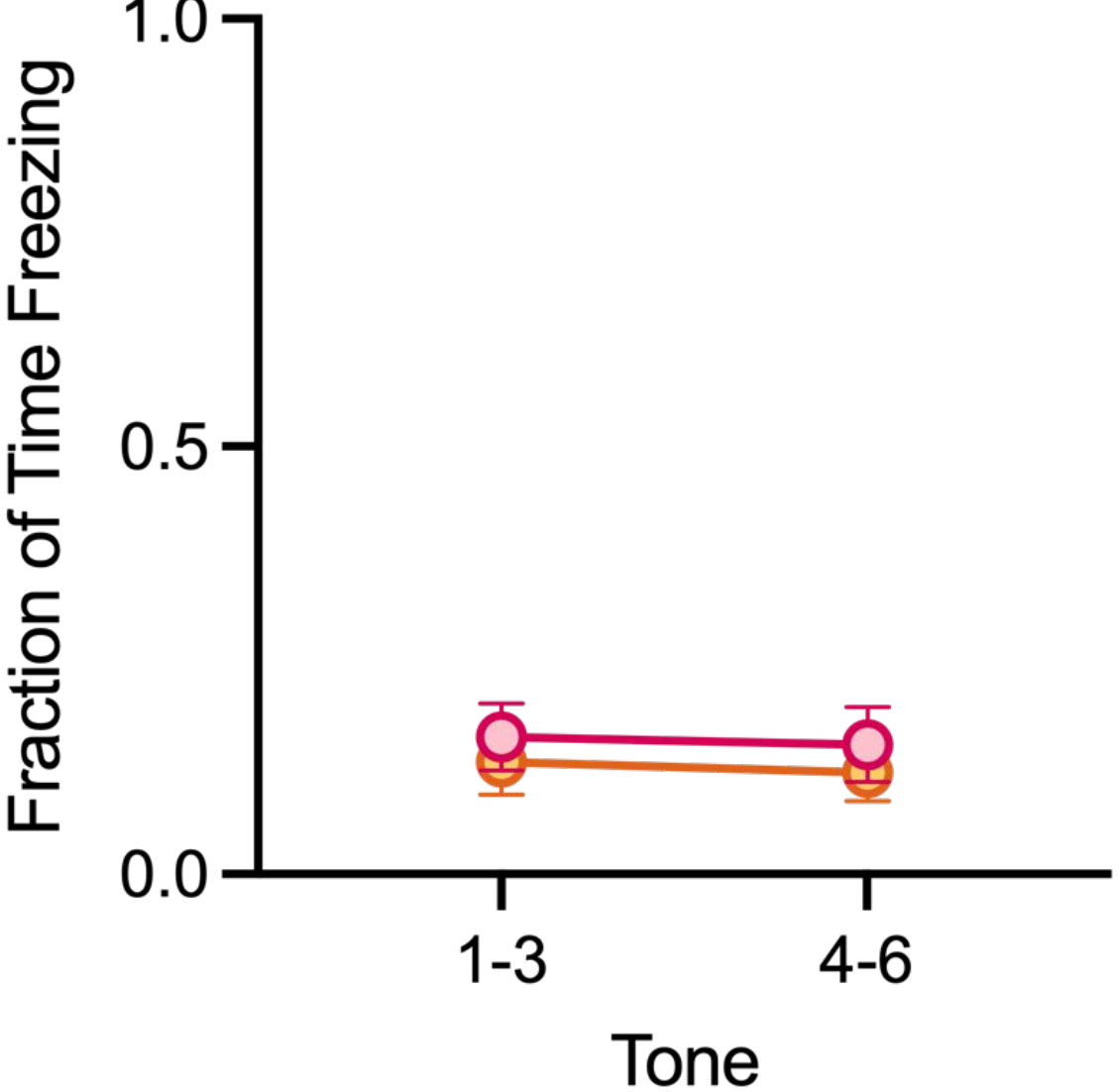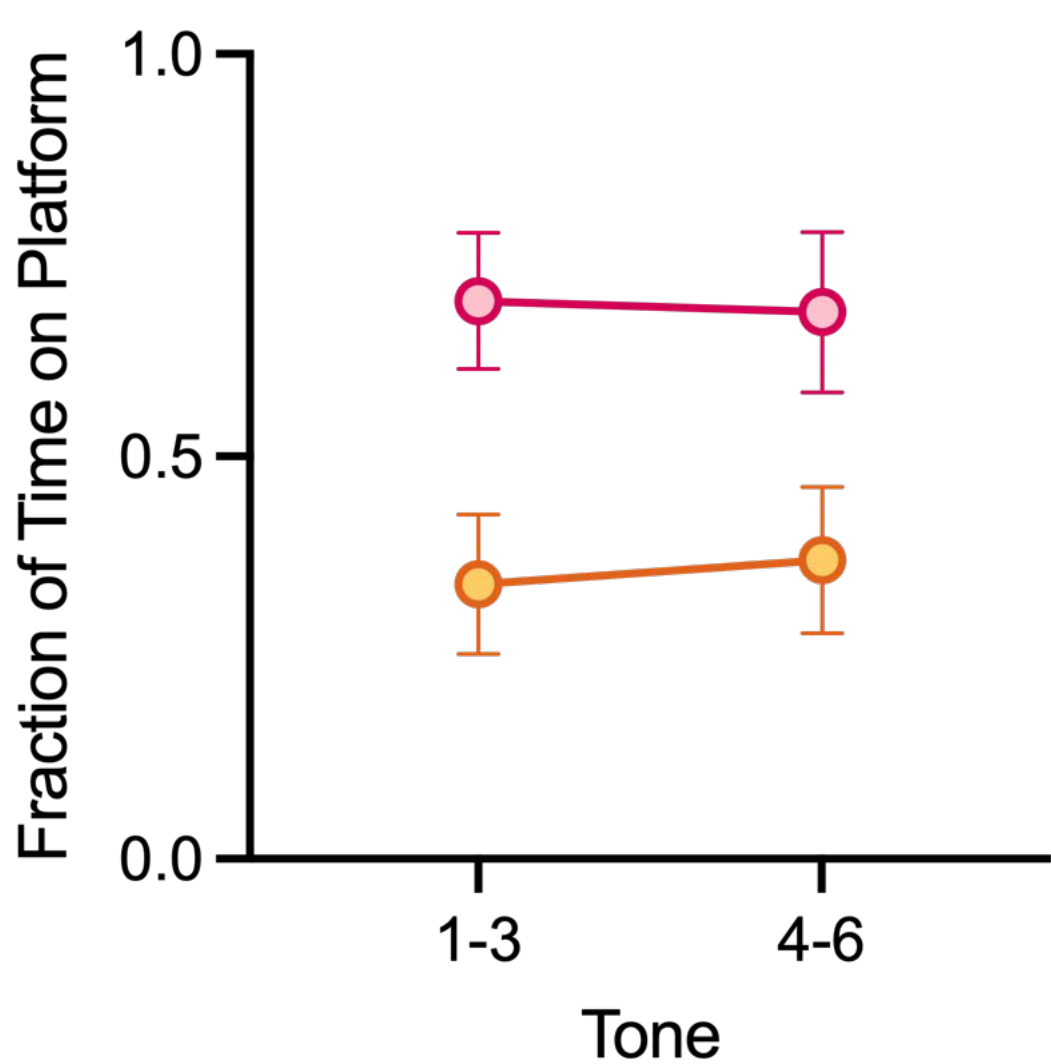
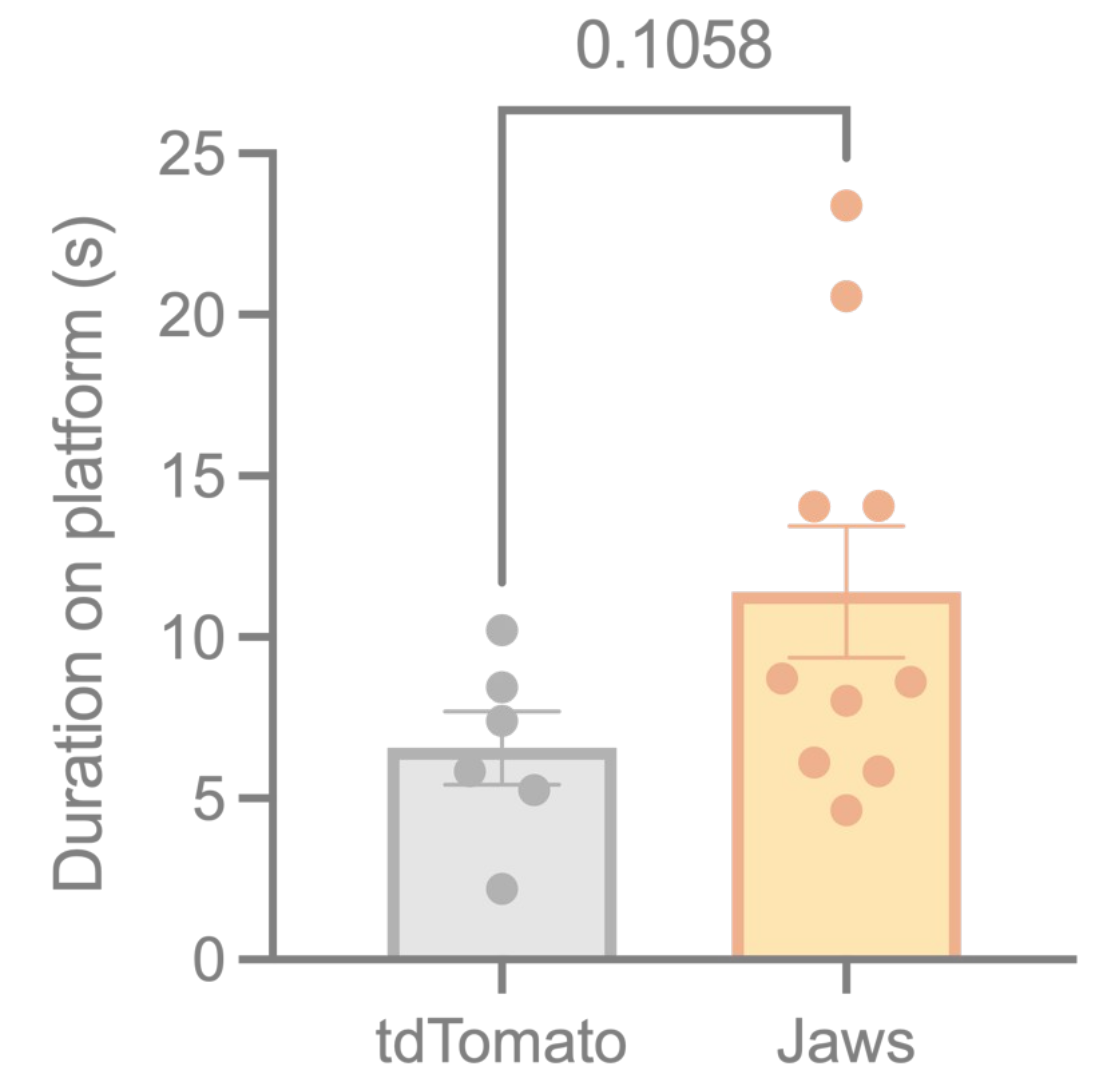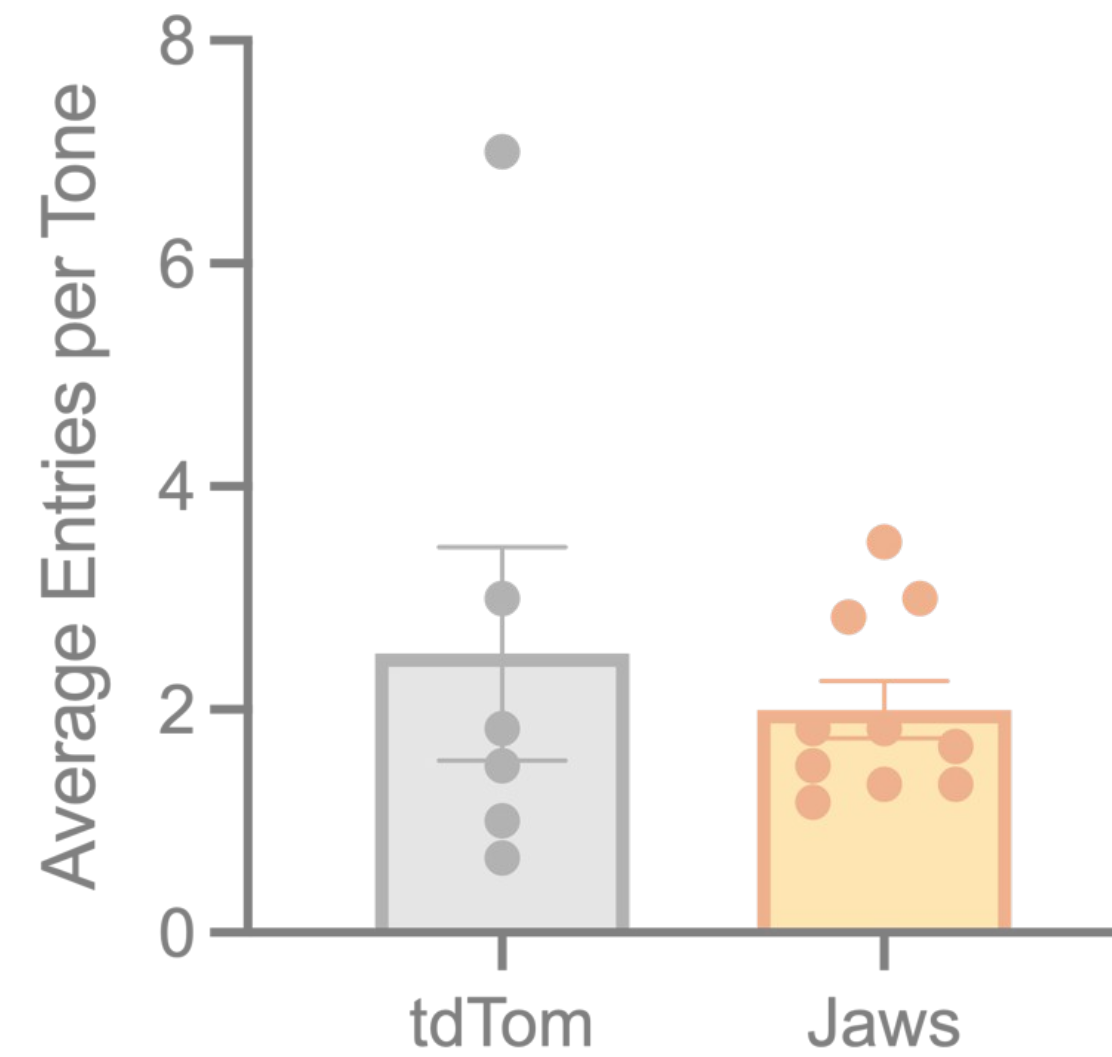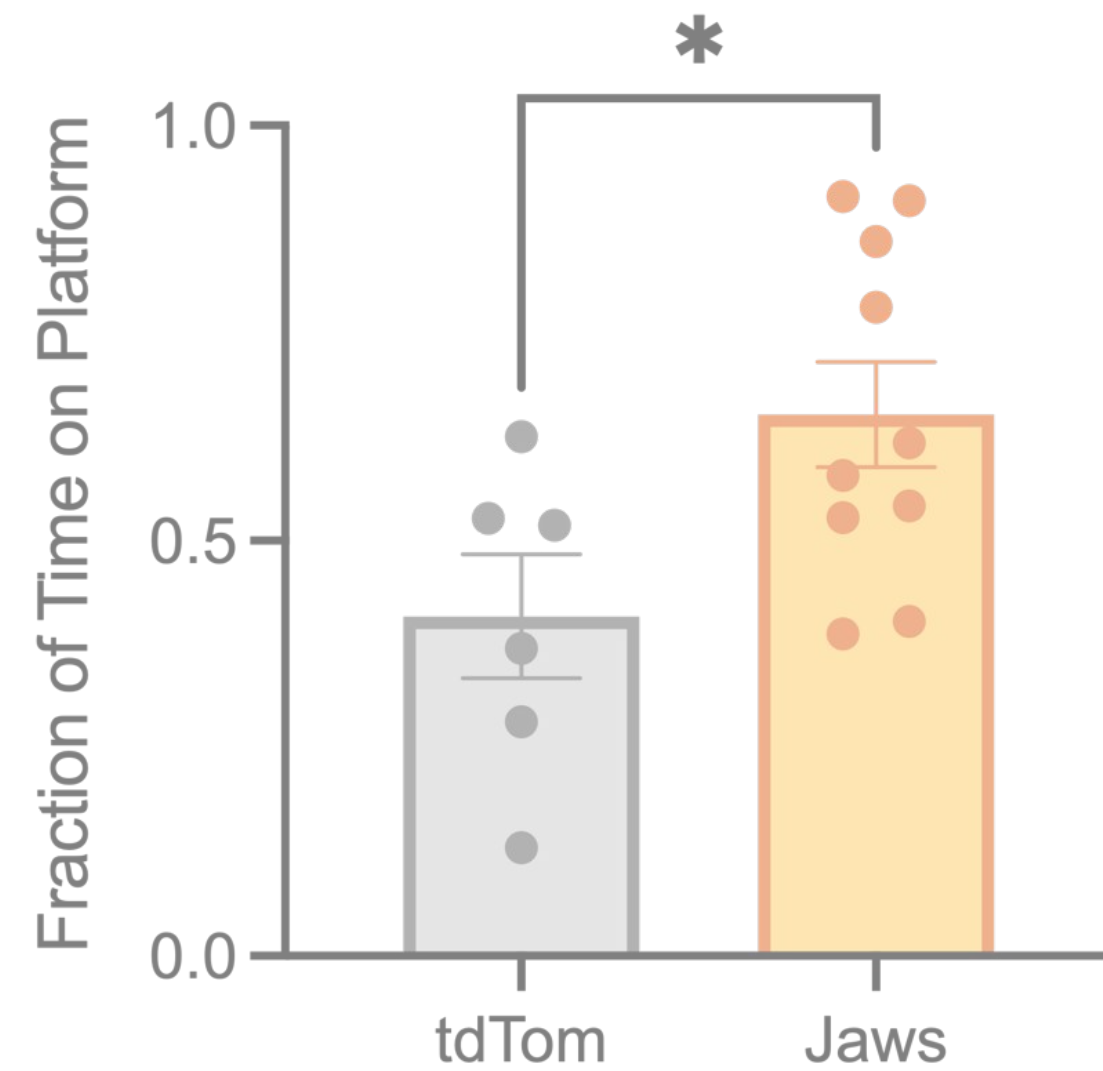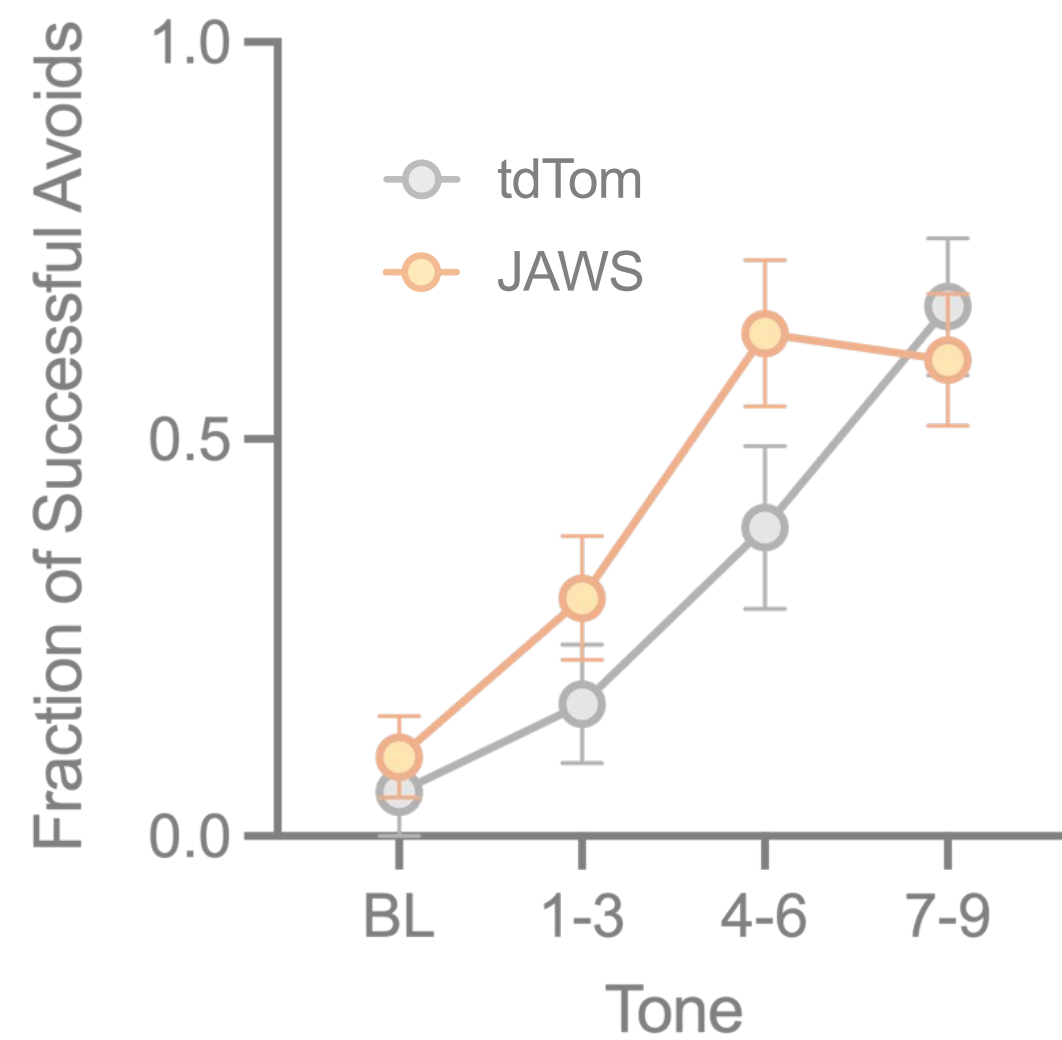You can use the dropper tool to maintain color scheme consistency

B

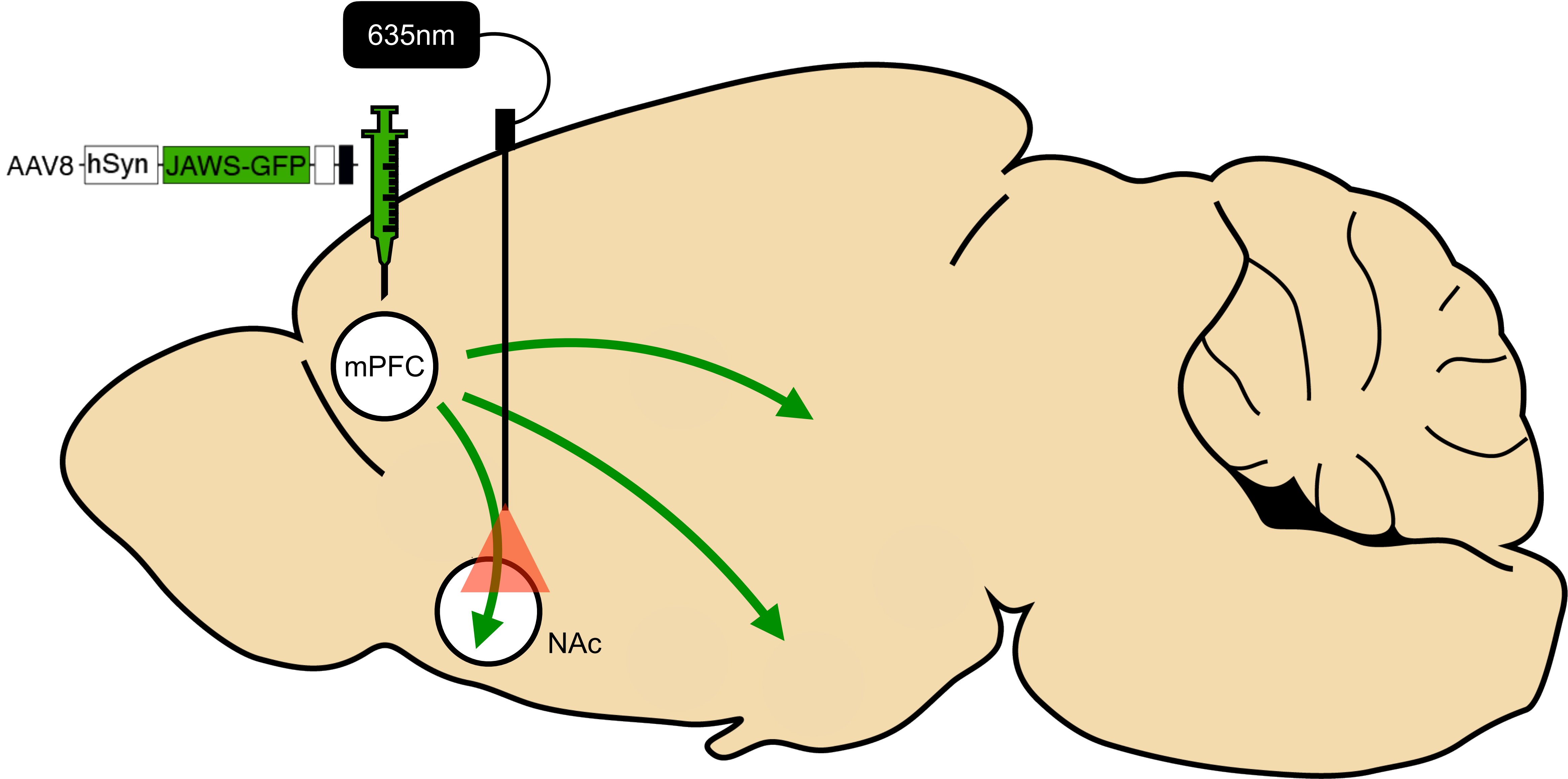Optogenetic inhibition of mPFC ➡ NAc projections in adolescents

Training

Retrieval

Optogenetic inhibition of mPFC–NAc projections in adolescent mice
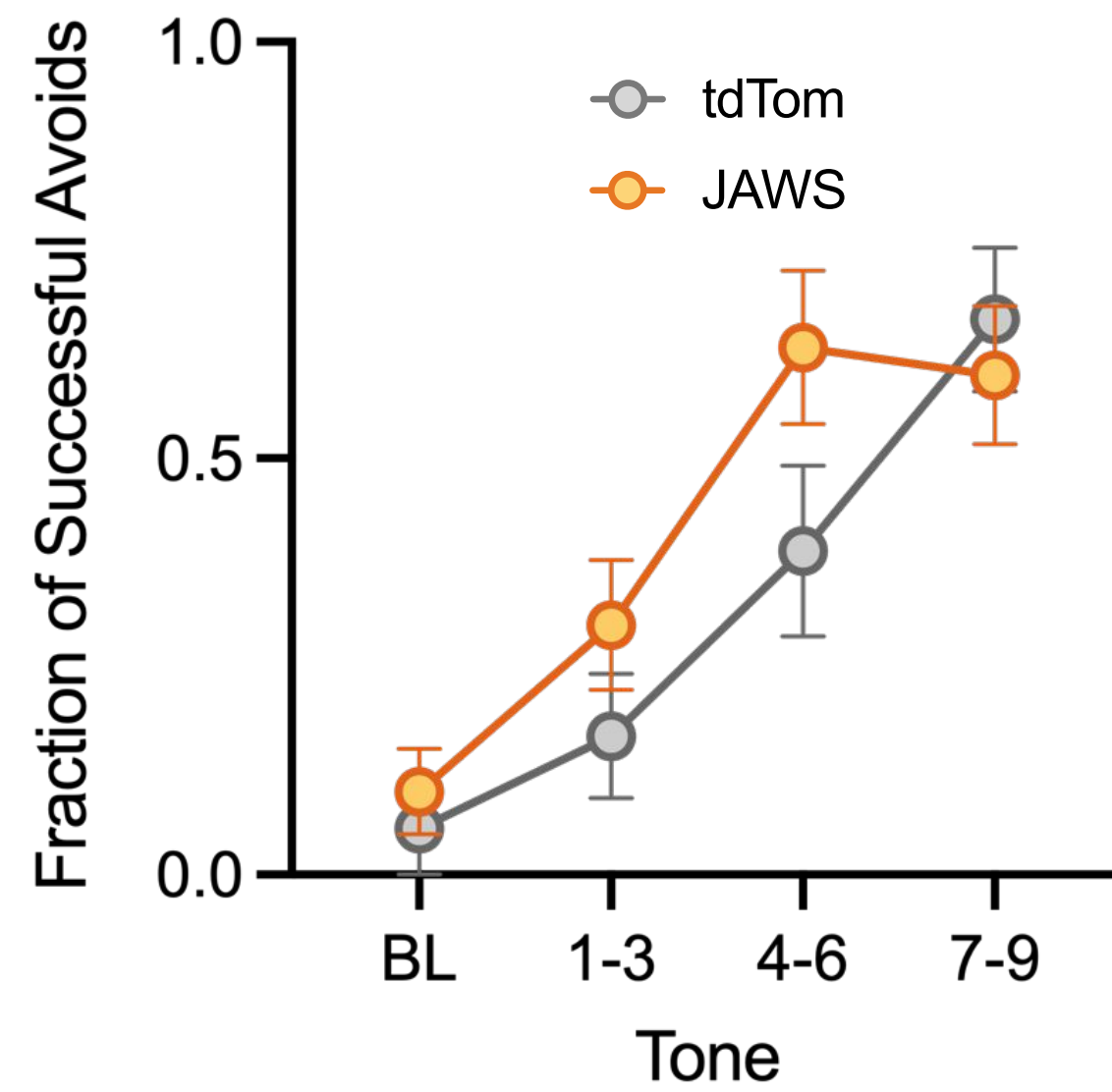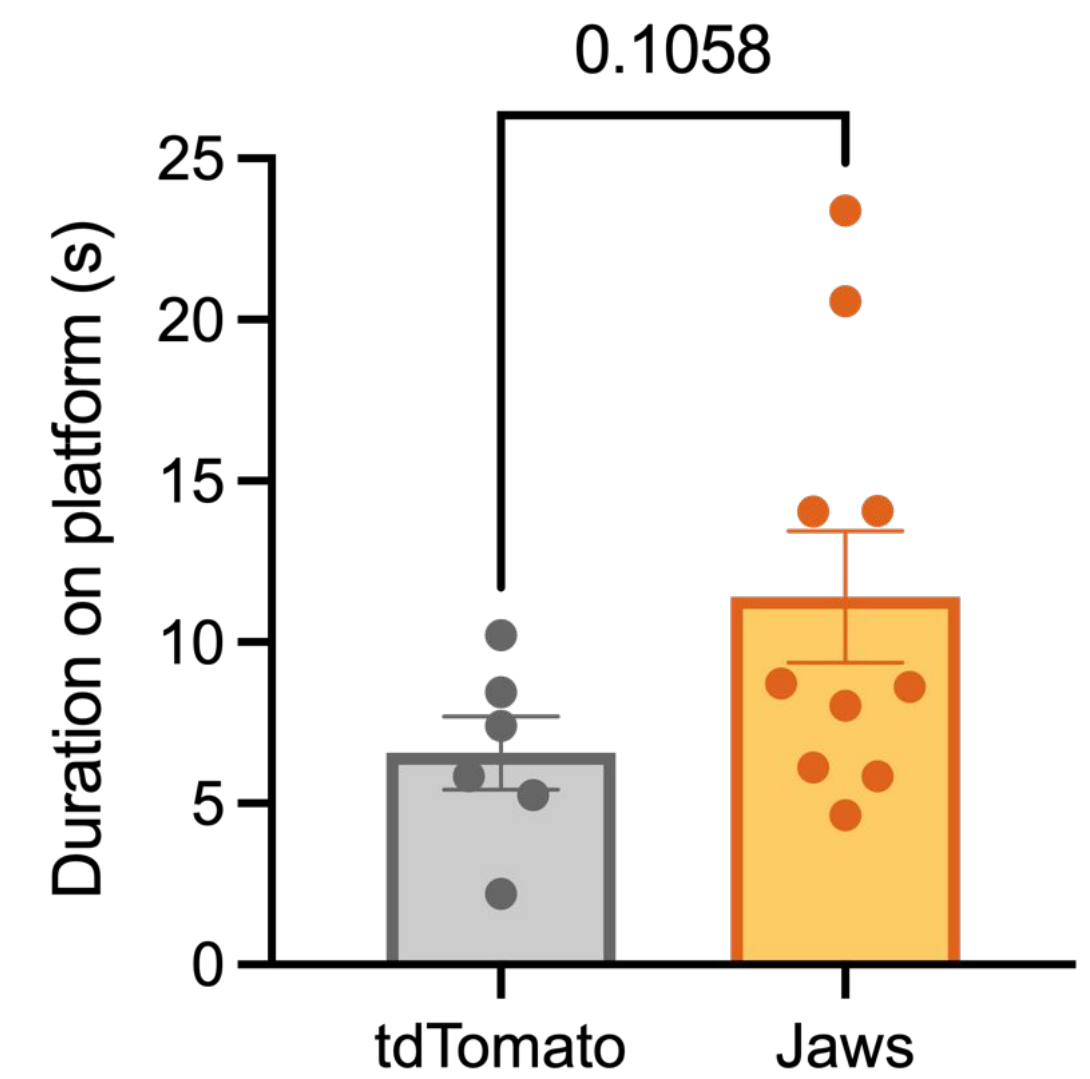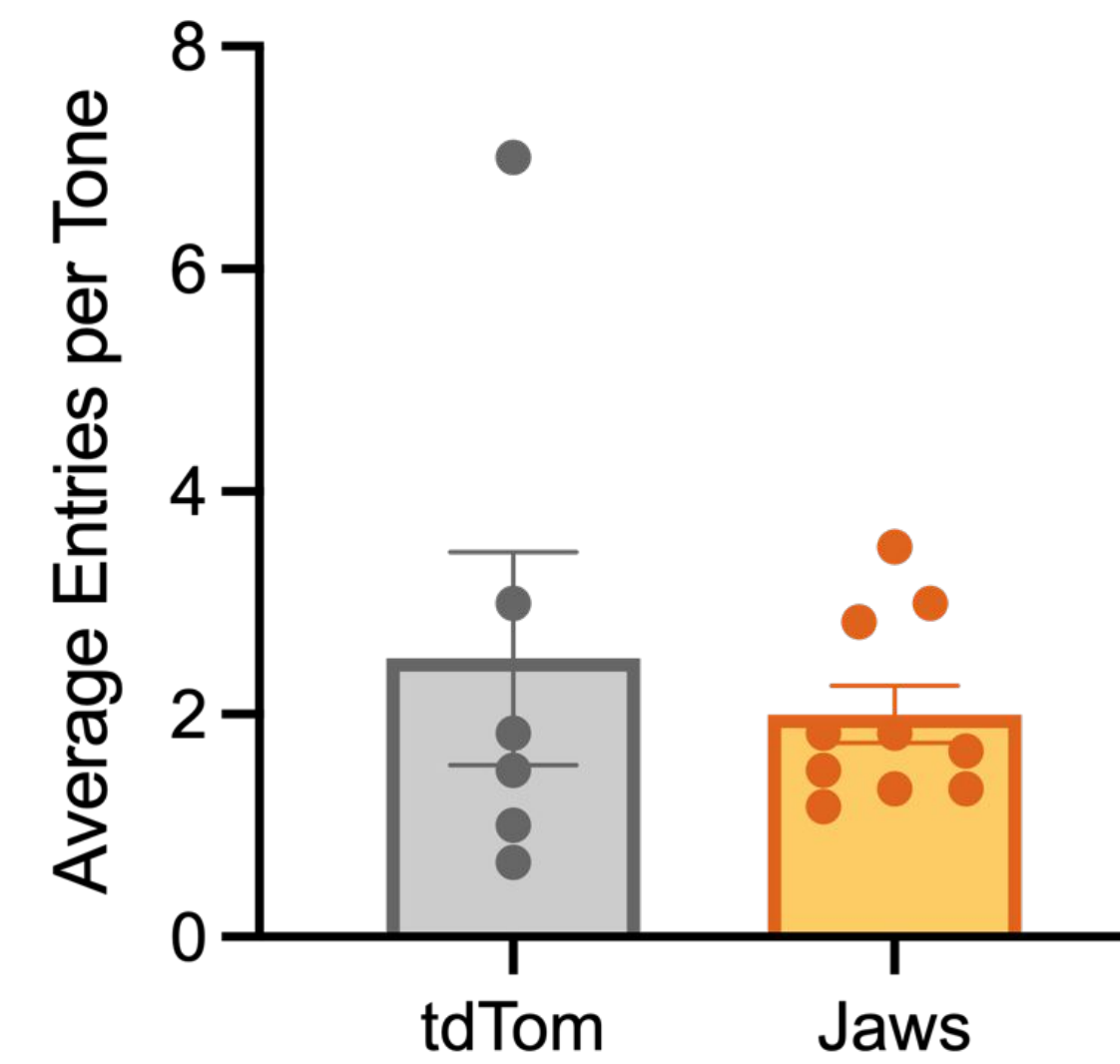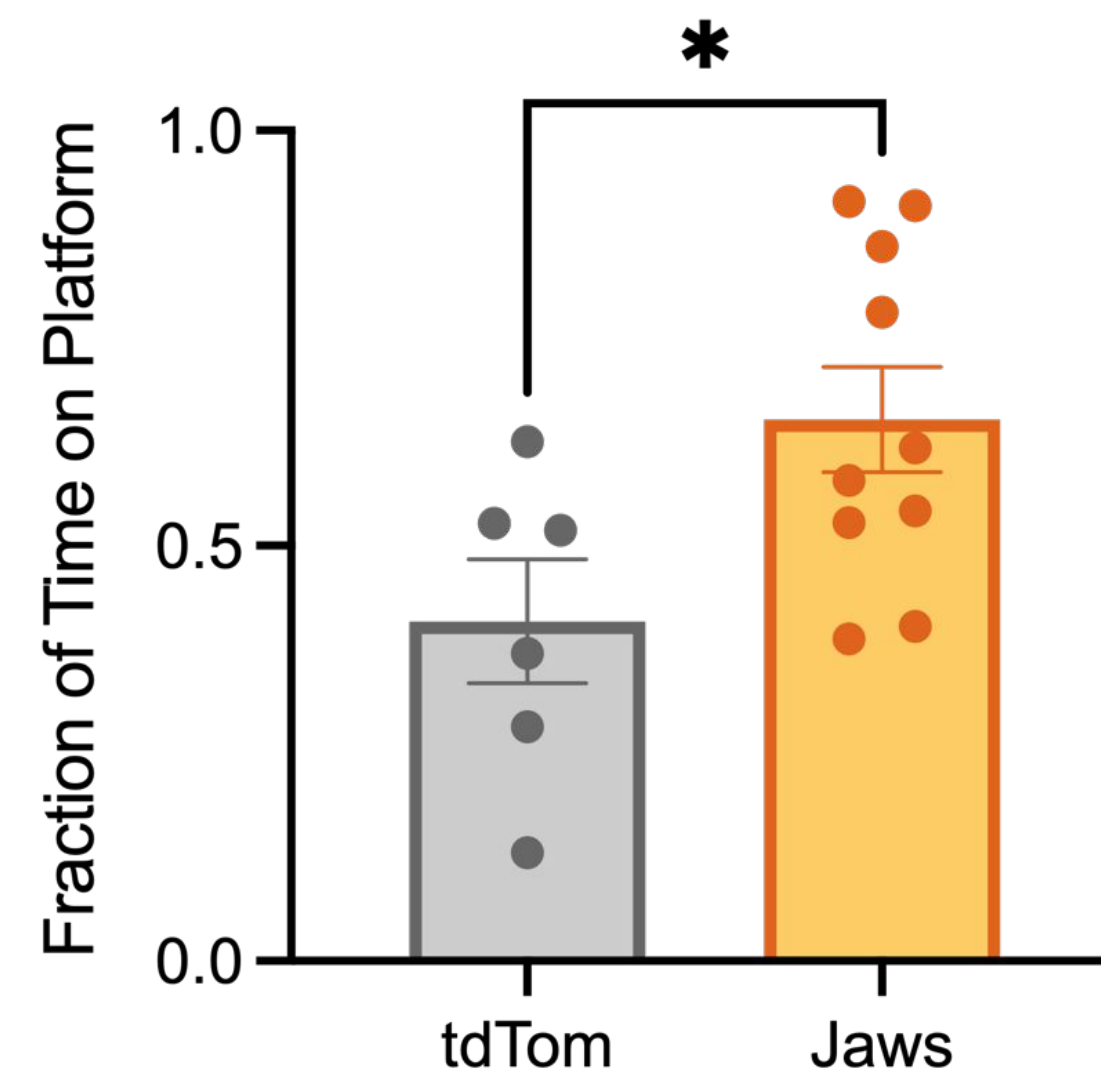
A

635nm

AAV8 — hSyn — JAWS-GFP

mPFC

NAc

Inhibiting mPFC–NAc projections increases avoidance in adolescents

A

Summary

1. Develop a visual theme that includes color, font, and formatting

2. Simplify your slides: less is more, bigger is better, pictures>words

3. Beautify your slides: use resources like SciDraw, make axes legible

4. Teach your talk: make it as easy to understand as possible

Acknowledgements

Questions?

Hunting and Eating

- Lions prey on large mammals
- Lions hunt in coordinated groups
- Cooperative hunting increases the likelihood of a successful hunt
- Teamwork also enables lions to defend their kills more easily against other predators

Lions hunt and eat in groups