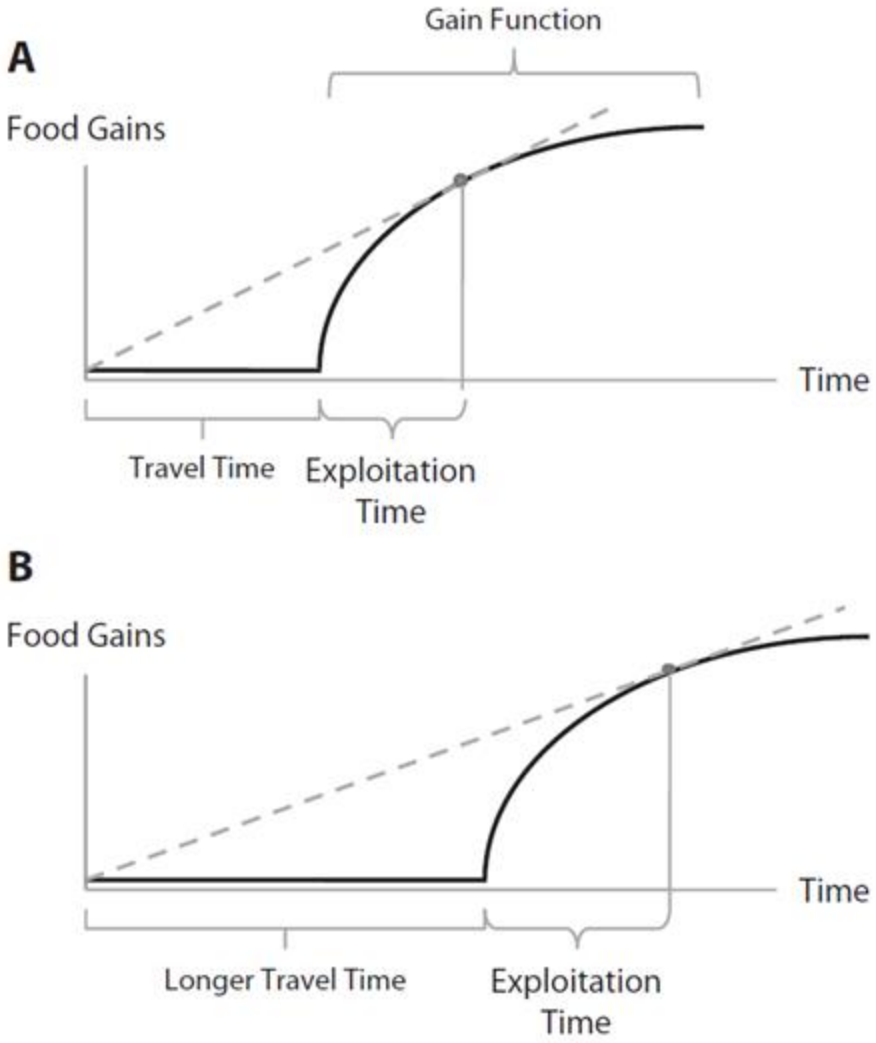
Making Plots & How to Interpret Figures

Eve198

Week 6

Maddie Armstrong & Rachael Bay

How to read figures

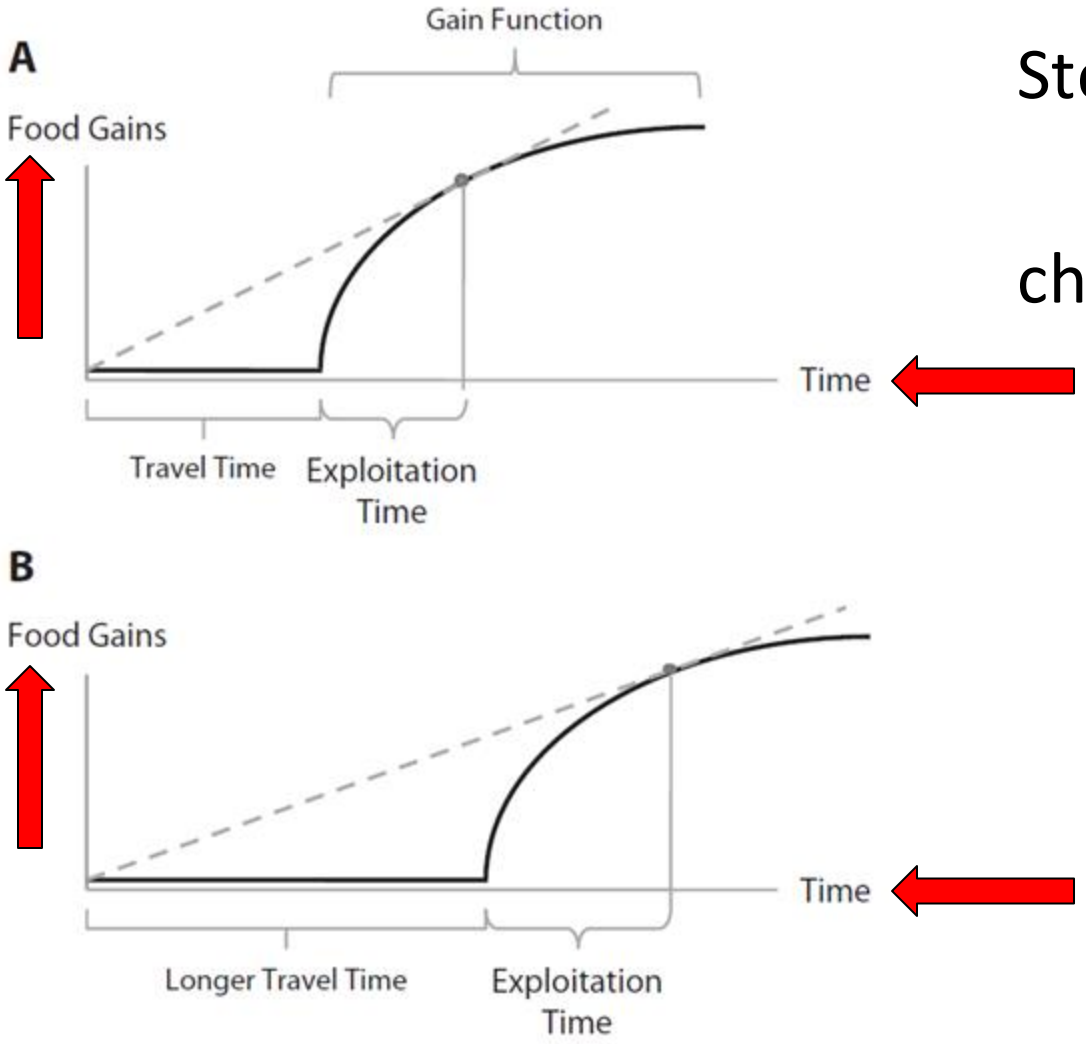


Step 1: Notice the X and Y axis

Step 2: Assess relationship between dependent and independent variables. (I.e., how does y change with x?)

Step 3: Read caption for extra figure information (i.e., dotted lines, colors, points etc.)

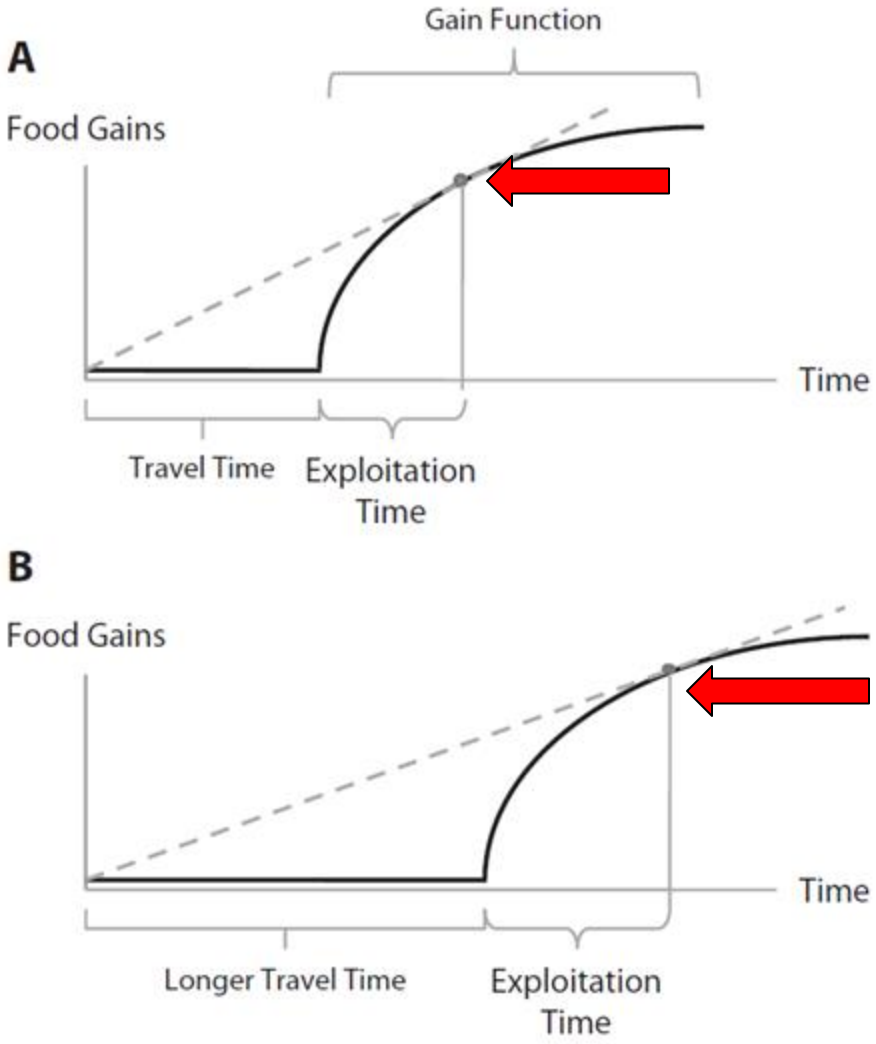
How to read figures



Step 1: Notice the X and Y axis

We will assess how food gains change over time.

How to read figures



Step 2: Assess relationship between dependent and independent variables.

A) No food gain during travel time, and when travel time is short, food gain begins faster
B) Long travel time, food gain begins later

Both: Exploitation time dictates diminishing returns in food gain.

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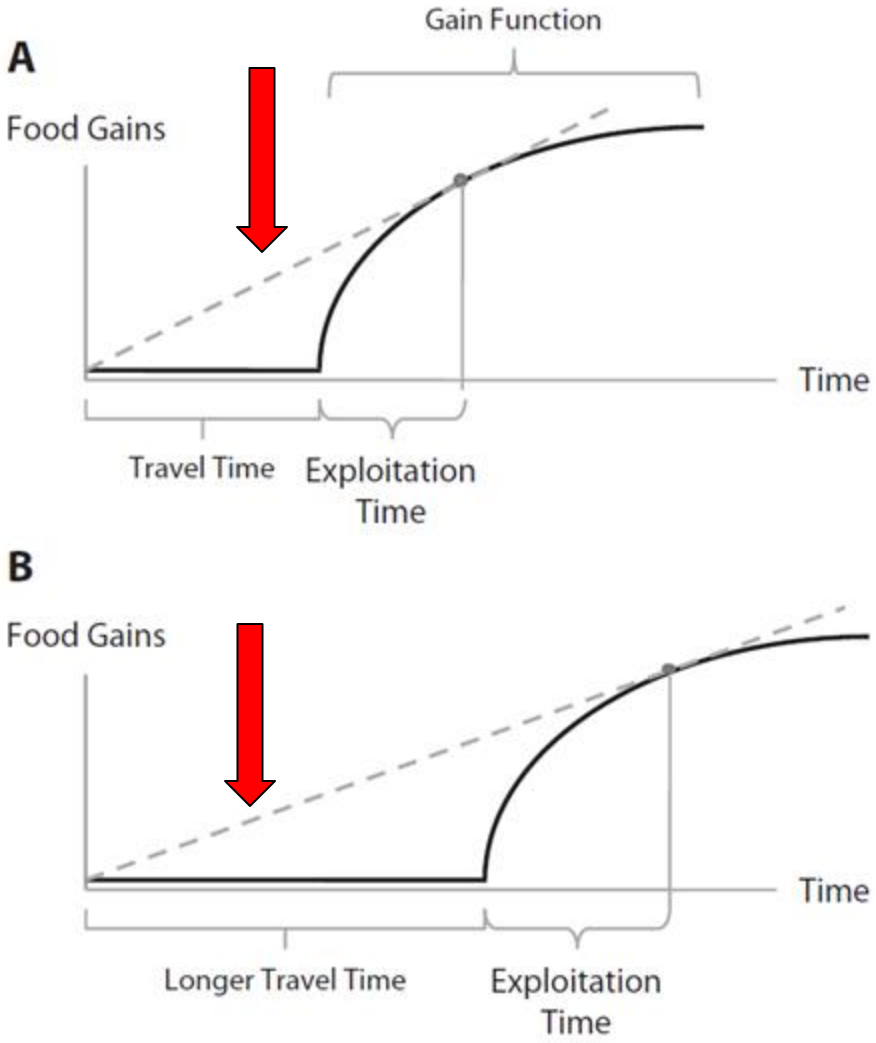
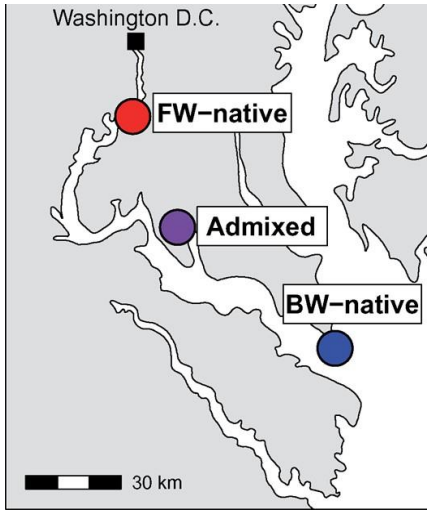


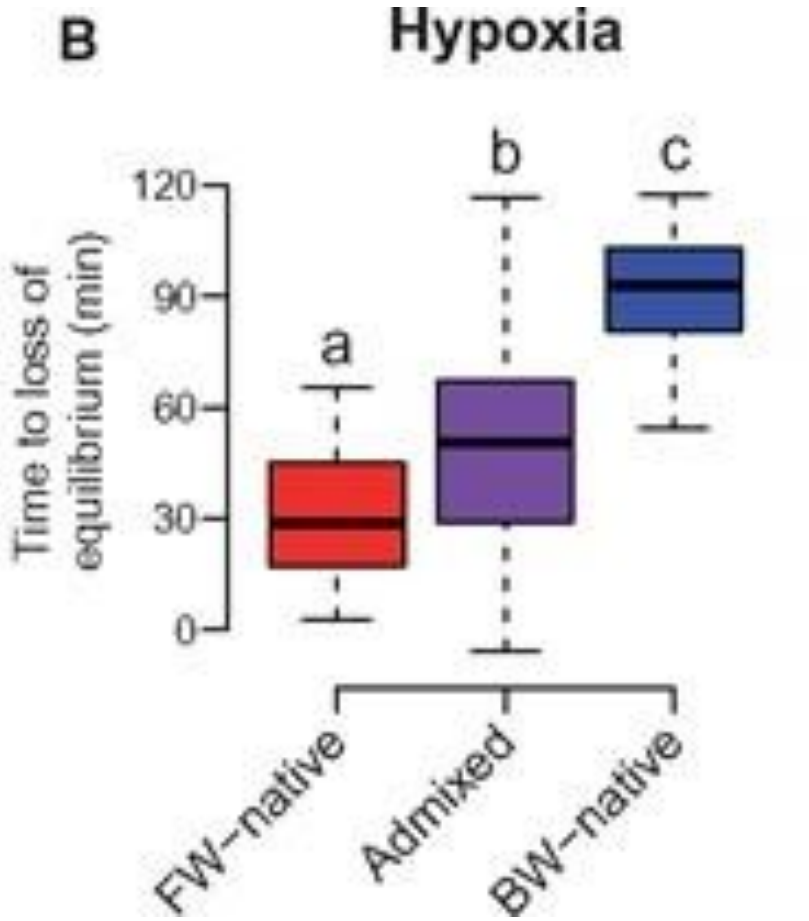
Step 3: Read caption for extra figure information (i.e., dotted lines, colors, points etc.)

- Tangent line from origin connects with maximum gain prior to diminishing returns.

Practice: What does this figure show us?

Integrative Population and Physiological Genomics Reveals Mechanisms of Adaptation in Killifish





FW= freshwater
BW=brackish water

FIG. 2. Variation in physiological traits for all populations. (With Fig 1 map for color information)

Brennan et al., 2018 https://academic.oup.com/mbe/article/35/11/2639/5068378

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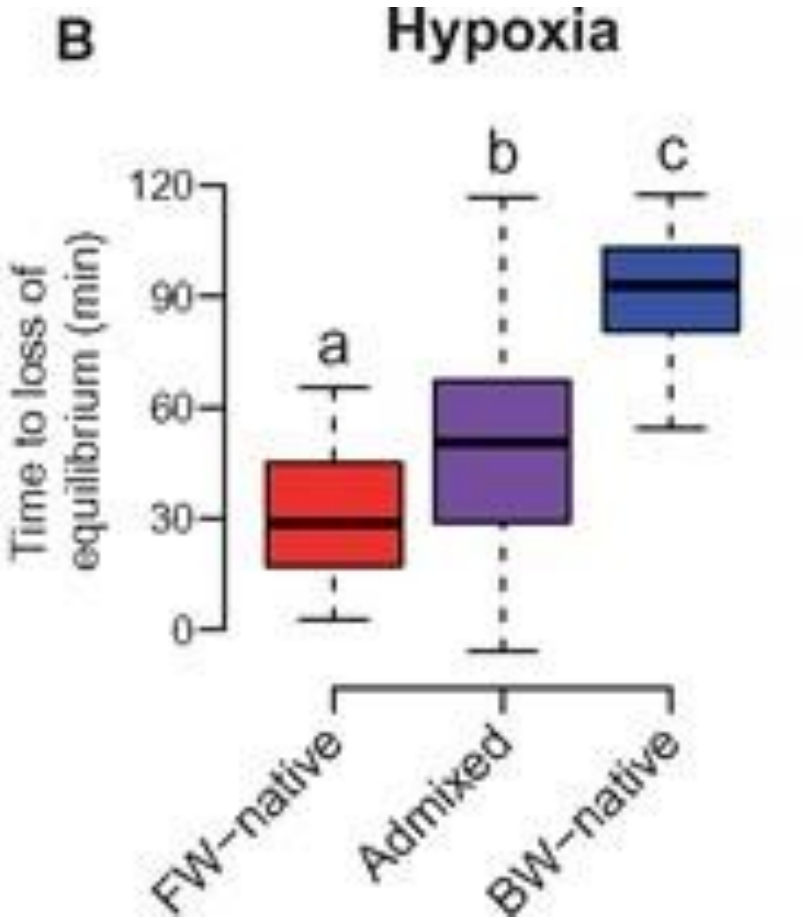
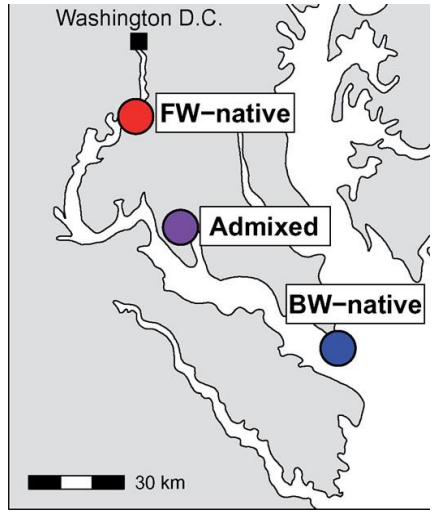
Integrative Population and Physiological Genomics Reveals Mechanisms of Adaptation in Killifish



← All statistically different in their hypoxia tolerance!



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Practice: What does this figure show us?

Genomic insights into neonicotinoid sensitivity in the solitary bee *Osmia bicornis*

Relative expression shifts in the genes associated with metabolizing neonicotinoids

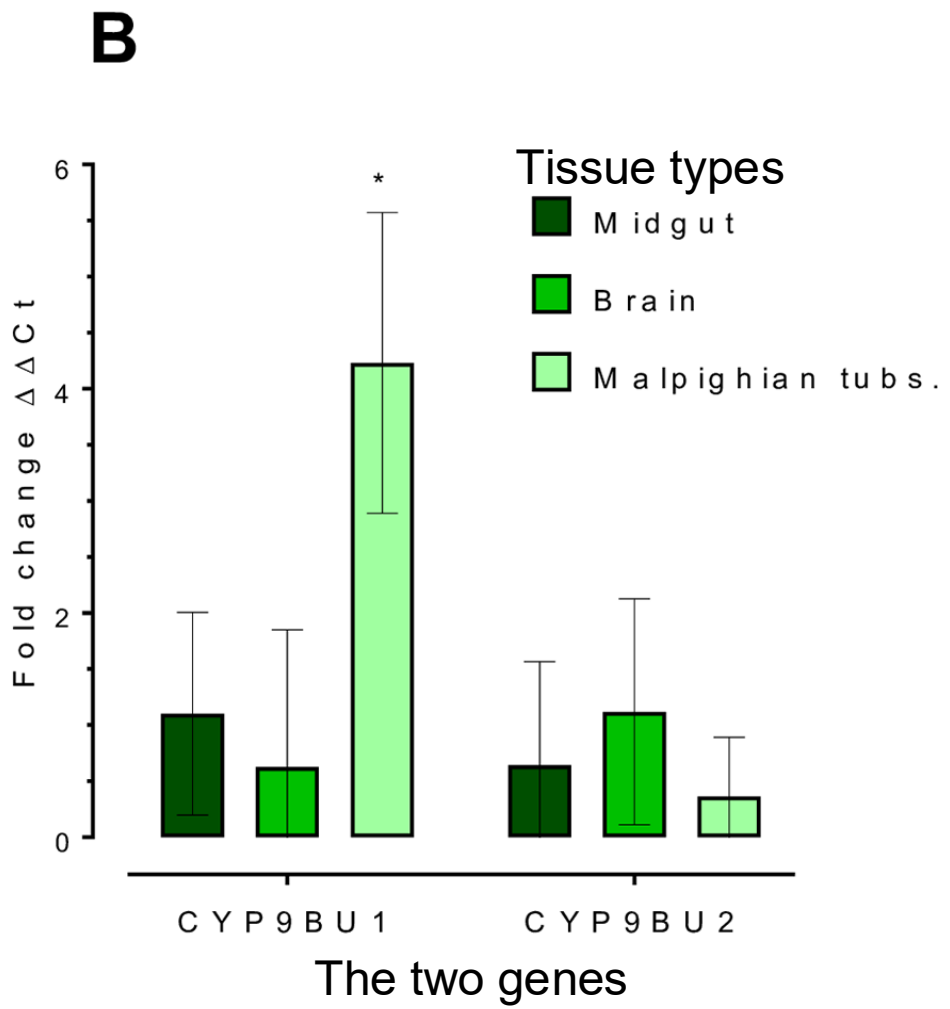

Fig 4. Expression of *O. bicornis* P450s after exposure to neonicotinoids and in different tissues.

Beadle et al., 2019
https://journals.plos.org/plosgenetics/article?id=10.1371/journal.pgen.1007903

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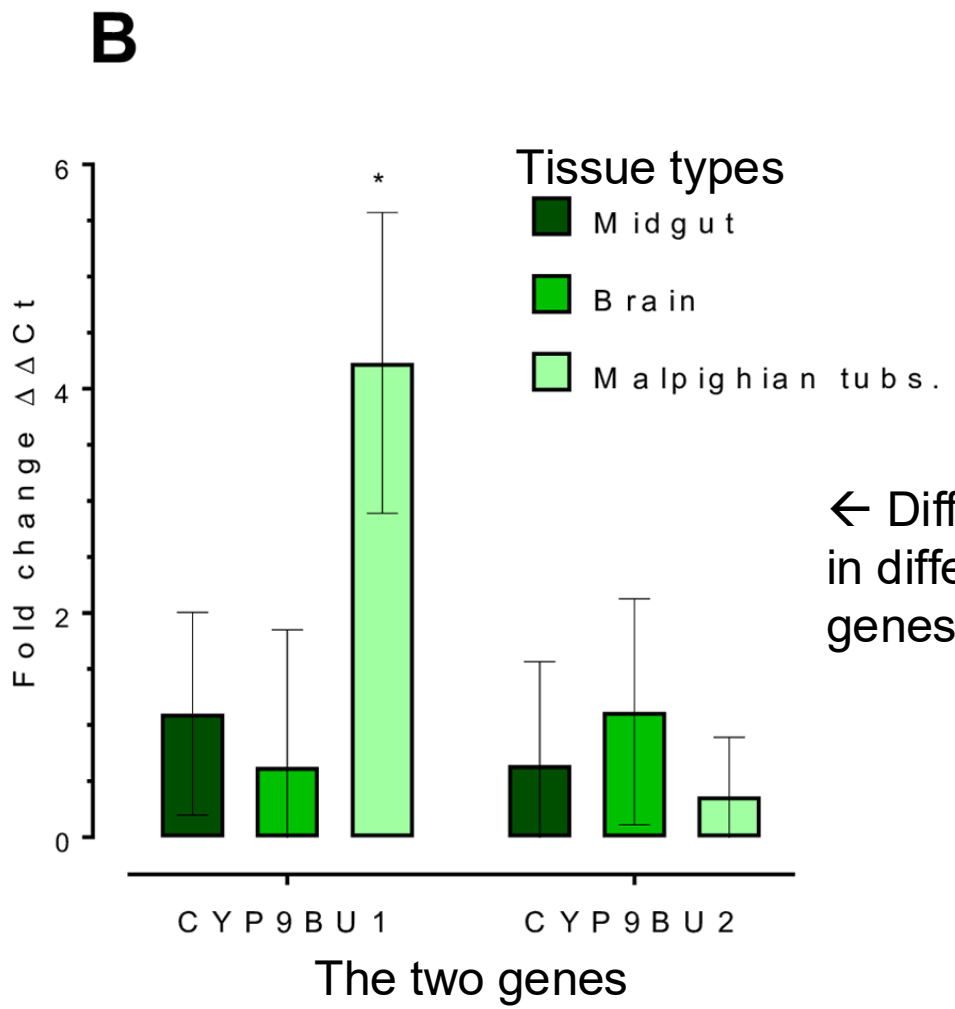

← Differences levels of expression in different tissue types of the two genes!

Fig 4. Expression of *O. bicornis* P450s after exposure to neonicotinoids and in different tissues.

Beadle et al., 2019
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Editorial

Ten Simple Rules for Better Figures

Nicolas P. Rougier[1,2,3]*, Michael Droettboom[4], Philip E. Bourne[5]

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https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833

10 simple rules for better figures

Rule 1: Know Your Audience

Who are you communicating this to? Your TA? Your peers? Does your audience have any prior information to help understand your content?

Rule 2: Identify Your Message

Communicate your message effectively.

Rule 3: Adapt the Figure to the Support Medium

Rule 4: Captions Are Not Optional

A reader should be able to get the entire paper message by reading figures. Make your caption strong.

Rule 5: Do Not Trust the Defaults

https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833

10 simple rules for better figures

Colors have meaning in figures. Use them wisely.

Avoid unnecessary details. Can your elements be summarized in a figure caption? If not, maybe it is too complicated.

Rule 6: Use Color Effectively

Rule 7: Do Not Mislead the Reader

Rule 8: Avoid "Chartjunk"

Rule 9: Message Trumps Beauty

Rule 10: Get the Right Tool

https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833