LEGO Activity Pre-Assessment

The following questions provide an opportunity for you to share some information about yourself and your experience and conceptual understanding prior to the LEGO in-class activity in Lab 4.

The survey is completely anonymous, and your participation is voluntary. You are not required to answer any questions that you do not wish to answer. Aggregate data and selected responses may be used for a science education publication.

1. What class year are you?

   Mark only one oval.

   ◯ 2020

   ◯ 2021

   ◯ 2022

   ◯ Other: _____

2. What is your major/planned major?

   Mark only one oval.

   ◯ BISC

   ◯ BIOC

   ◯ NEUR

   ◯ Other: _____

3. Have you taken a college-level biochemistry course or BISC 335?

Mark only one oval.

○ Yes

○ No

○ Currently co-enrolled

○ Other: _____

Conceptual Understanding

Based on what you learned from the LEGO activity, as well as what you have discussed in the lecture portion of this course, answer the following questions about enzyme kinetics. Do not use outside sources to help you answer these questions.

4. Increasing substrate concentration in an enzyme-catalyzed reaction:

Mark only one oval.

○ increases the velocity at all substrate concentrations.

○ increases the velocity at low substrate concentrations, but has minimal effect at high concentrations.

○ does not affect the velocity at low substrate concentrations, but has a large effect at high concentrations.

○ does not affect the velocity regardless of substrate concentration.

○ Don't know/not sure.

5. Adding a competitive inhibitor to an enzyme catalyzed reaction would have:

Mark only one oval.

○ no effect on the Km and cause the Vmax to decrease

○ no effect on the Vmax and cause the Km to decrease

○ no effect on the Vmax and cause the Km to increase

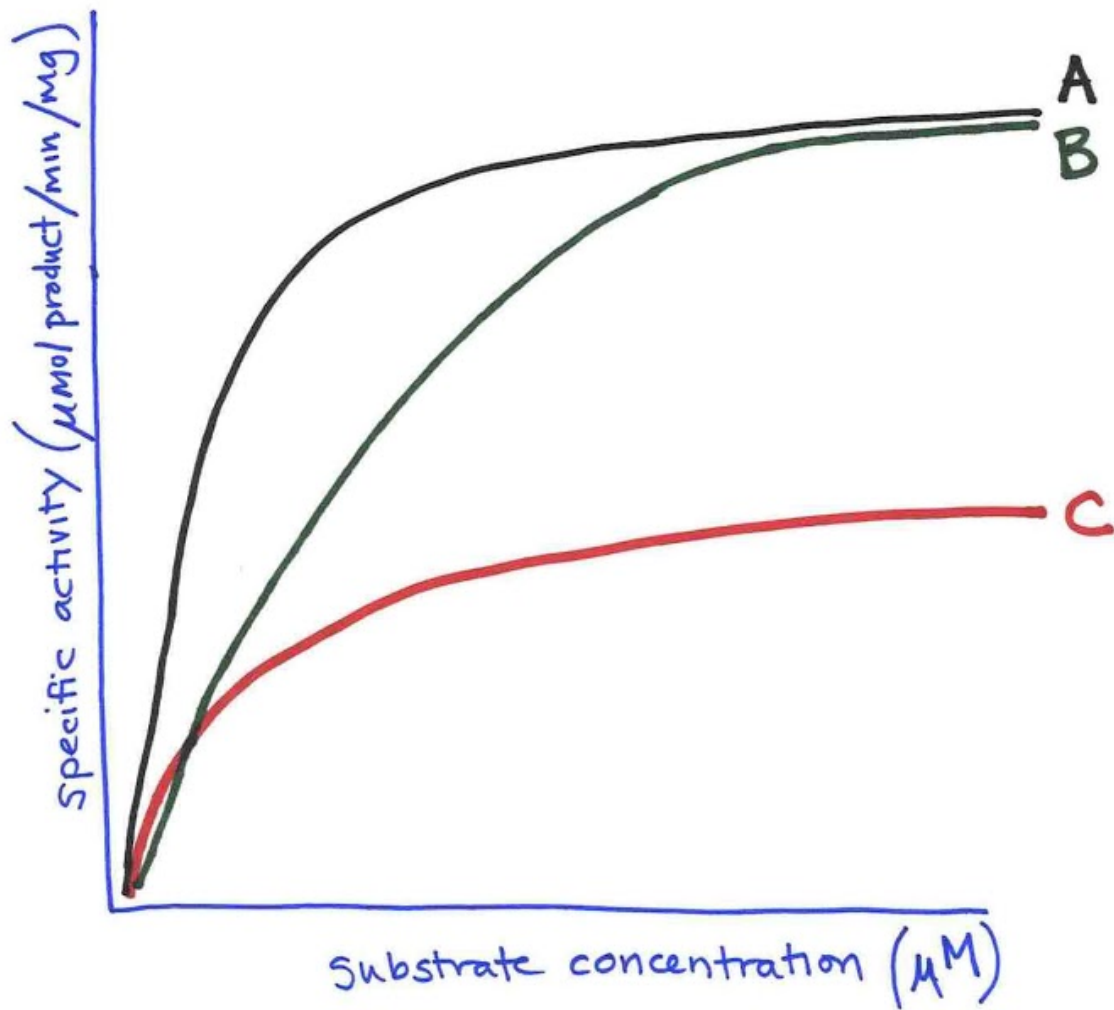○ an effect on both the Vmax and the Km

6. Examine the graph of a Michaelis-Menten plot showing three data series. Which letter best represents data indicating competitive inhibition?
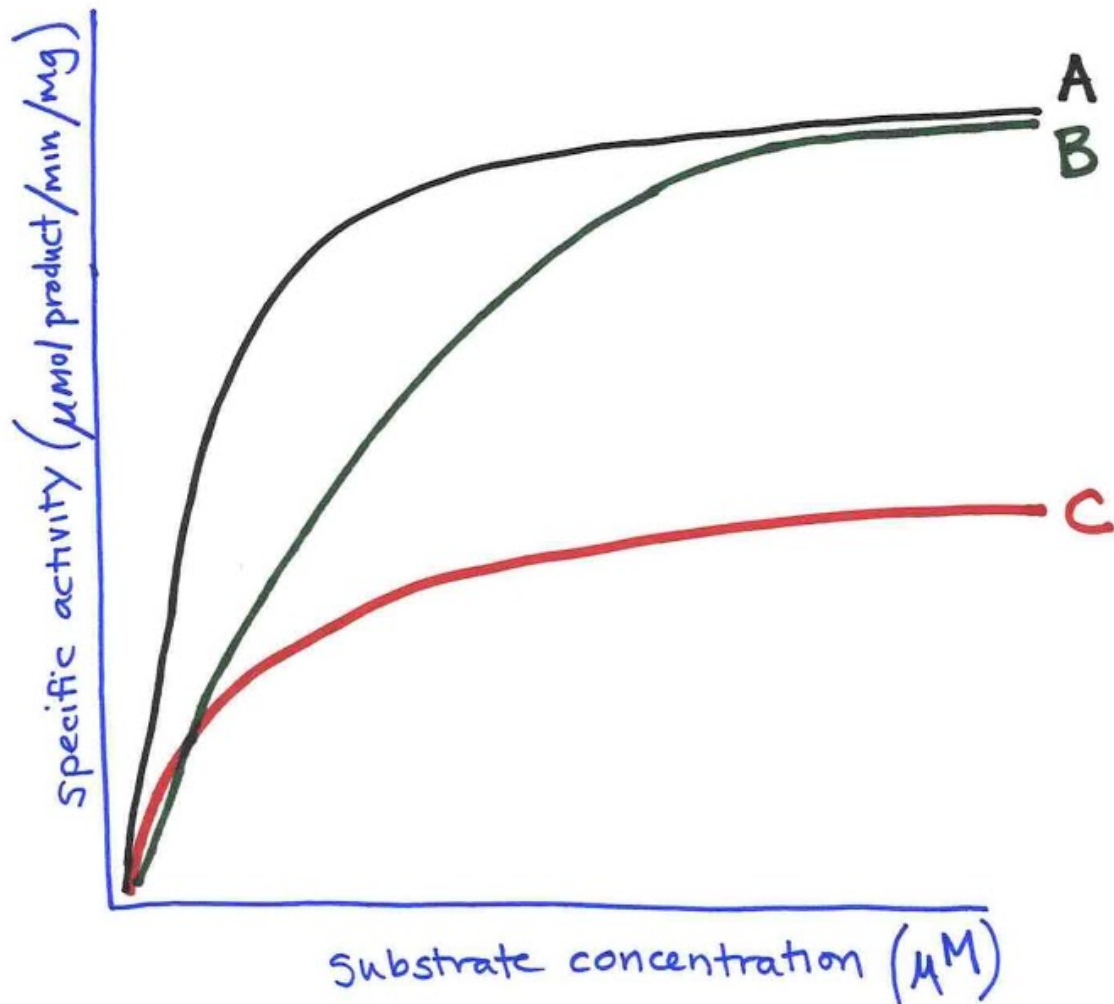
Mark only one oval.

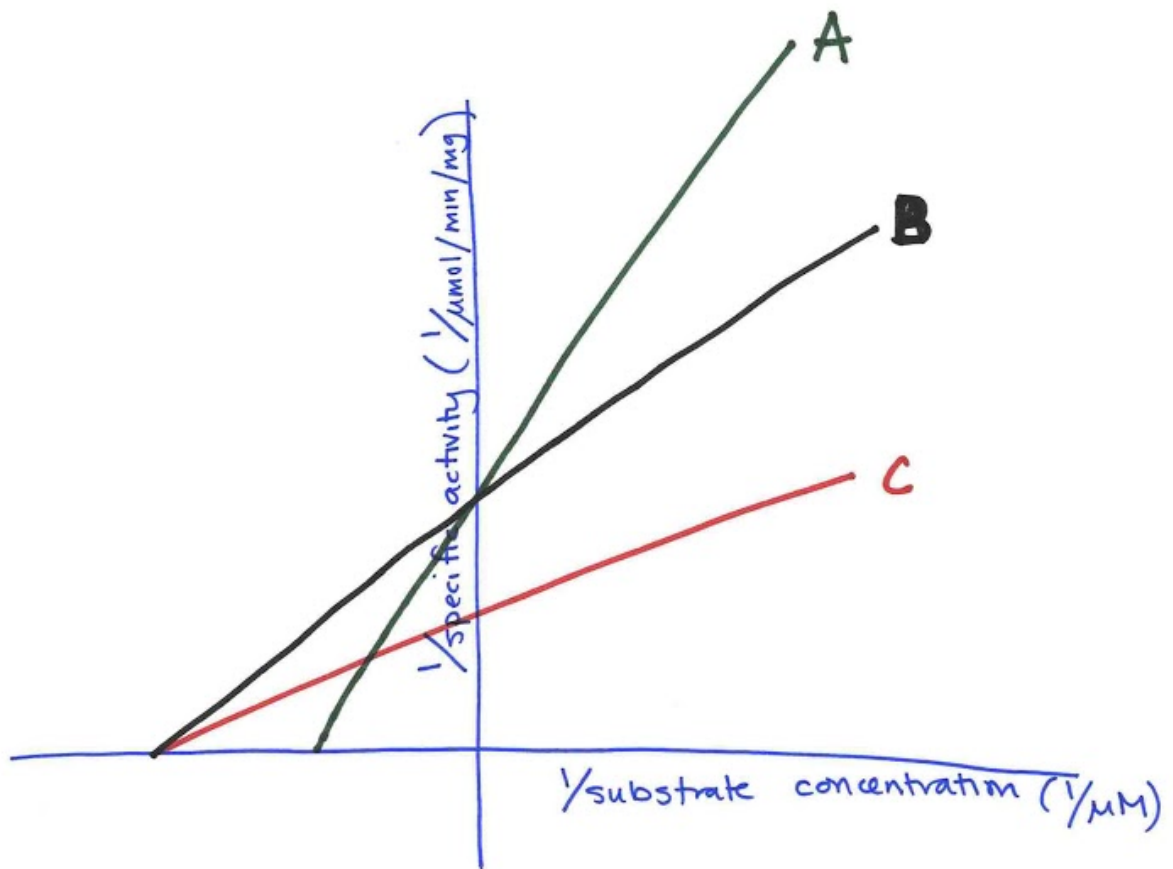- A
- B
- C
- don't know/not sure

7. Examine the graph of a Michaelis-Menten plot showing three data series. Which letter best represents data indicating non-competitive inhibition?

Mark only one oval.
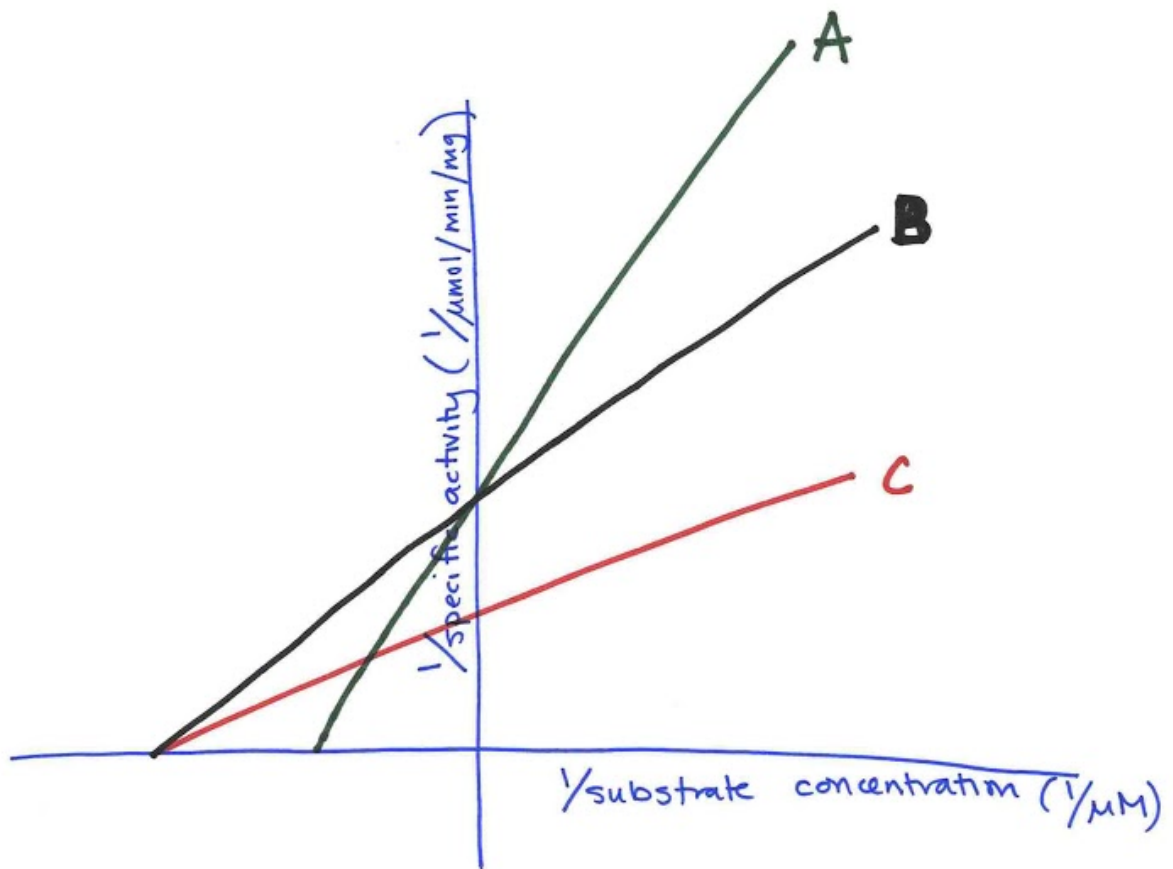
- ◯ A
- ◯ B
- ◯ C
- ◯ don't know/not sure

8. Examine the graph of a Lineweaver-Burk plot showing three data series. Which letter best represents data indicating competitive inhibition?

Mark only one oval.

○ A

○ B

○ C

○ don't know/not sure

9. Examine the graph of a Lineweaver-Burk plot showing three data series. Which letter best represents data indicating non-competitive inhibition?

Mark only one oval.

A

B

C

don't know/not sure