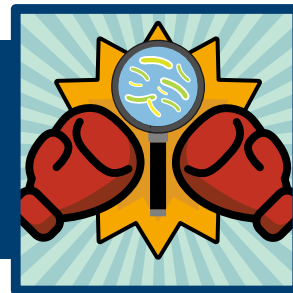


## Teacher Directions

### UNIT: TUBERCULOSIS

#### LESSON 3: ME VS. TB - BOOSTING THE IMMUNE SYSTEM TO DEFEAT AN ANCIENT ADVERSARY

#### ACTIVITY 3A: PROVE IT WITH CER!



TEXAS BIOMEDICAL  
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HEALTH STARTS WITH SCIENCE

### Lesson Objective

Analyze the extrapolated data to determine the effectiveness of the TB treatment.

### Research Question

Which TB therapy is most effective?

### Directions

Students will create a graph from a set of data tables representing TB treatments that support host directed therapies (HDT). Students will use the following steps to complete their graph.

1. Title your graph.
2. Label the X and Y axis of your graph.
3. Using the data tables, create bar graphs representing the effectiveness of each treatment.
4. Use 4 different colors to represent the 4 different treatments shown in each data table. Indicate the colors below. A legend is provided with the graph. Shade in the number box with the corresponding color.
  - Control Group (Column 1 on the graph) Color: \_\_\_\_\_
  - HDT Inhibitor Protein 1 (Columns 2, 3, 4) Color: \_\_\_\_\_
  - HDT Inhibitor Protein 2 (Columns 5, 6, 7) Color: \_\_\_\_\_
  - HDT Inhibitor Protein 1 & 2 (Columns 8, 9,10) Color: \_\_\_\_\_
5. Students will answer the research question and complete the CER after completing their graph.

### Analyzing HDT Data

Control Group (No Treatment)	
<i>M.tb</i> CFUs (%)	100

HDT Inhibitor Protein #1 S63845 (S)	
<i>Concentration</i> Molarity (M)	<i>M.tb</i> CFUs (%)
0.1 $\mu$ M	80
1 $\mu$ M	75
10 $\mu$ M	70

HDT Inhibitor Protein #2 venetodax/ABT-199 (ABT)	
<i>Concentration</i> Molarity (M)	<i>M.tb</i> CFUs (%)
0.1 $\mu$ M	78
1 $\mu$ M	80
10 $\mu$ M	60

HDT Inhibitor Protein #1 & #2 Combination	
<i>HDT #1 (S) + HDT #2 (ABT)</i> Concentration Molarity	<i>M.tb</i> CFUs (%)
0.1 $\mu$ M S + 1 $\mu$ M ABT	75
10 $\mu$ M S + 1 $\mu$ M ABT	30
10 $\mu$ M	10

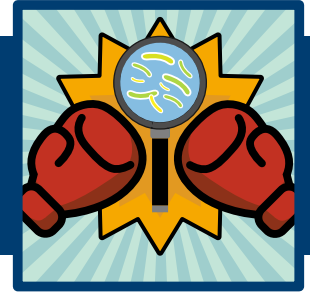
#### MIDDLE & HIGH SCHOOL LEVEL

# Teacher Directions

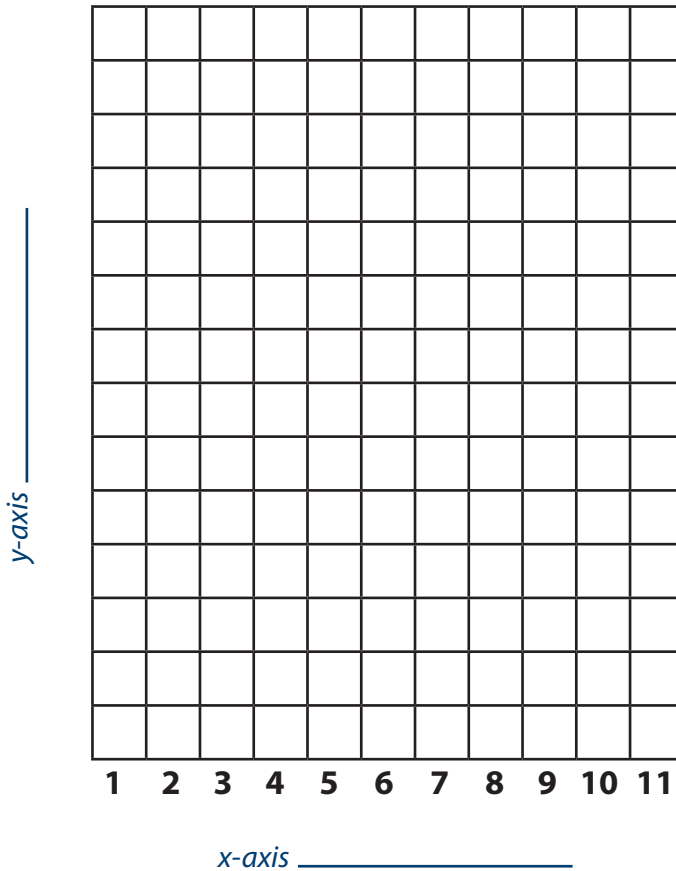
## UNIT: TUBERCULOSIS

### LESSON 3: ME VS. TB - BOOSTING THE IMMUNE SYSTEM TO DEFEAT AN ANCIENT ADVERSARY

#### ACTIVITY 3A: PROVE IT WITH CER!



Title \_\_\_\_\_



Legend	
1	Control Group
2	0.1 $\mu\text{M}$ S
3	1 $\mu\text{M}$ S
4	10 $\mu\text{M}$ S
5	0.1 $\mu\text{M}$ ABT
6	1 $\mu\text{M}$ ABT
7	10 $\mu\text{M}$ ABT
8	1 $\mu\text{M}$ S + 1 $\mu\text{M}$ ABT
9	10 $\mu\text{M}$ S + 1 $\mu\text{M}$ ABT
10	10 $\mu\text{M}$ S + 1 $\mu\text{M}$ ABT

### Research Question

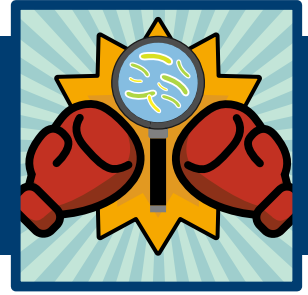
Which TB therapy is most effective?

## Teacher Directions

### UNIT: TUBERCULOSIS

#### LESSON 3: ME VS. TB - BOOSTING THE IMMUNE SYSTEM TO DEFEAT AN ANCIENT ADVERSARY

#### ACTIVITY 3A: PROVE IT WITH CER!



### Claim/Hypothesis

Look at your graph. What do you observe? Write your claim based on your observations. If writing a hypothesis, it is important to know that hypotheses are not educated guesses. Hypotheses are informed by observations, not assumptions. Hypotheses are proposed explanations about the observations and are not “if/then” statements.

### Evidence/Data

Interpret the bar graphs. Describe what you see. This is the evidence or data that supports your claim.

### Reasoning/Data Analysis

Give meaning to your evidence. In other words, how does the evidence support your claim?