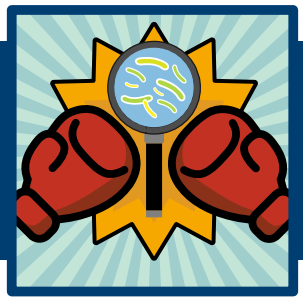
STUDENT DIRECTIONS

UNIT: TUBERCULOSIS

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

ACTIVITY 3A: *PROVE IT WITH CER!*



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HEALTH STARTS WITH SCIENCE

In this activity, you will use research data from TB research to create a graph to answer the following research question. You will also prepare a Claim, Evidence, and Reasoning (CER) to analyze the graphical data.

Research Question

Which TB therapy is most effective?

Directions

You will create a graph from a set of data tables representing TB treatments that support host directed therapies (HDTs). Follow the steps below to complete your 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. Complete your CER.

Analyzing HDT Data

Control Group (No Treatment)	
M.tb CFUs (%)	100

HDT Inhibitor Protein #1 S63845 (S)	
Concetration Molarity (M)	*M.tb CFUs (%)*
0.1 µM	80
1 µM	75
10 µM	70

HDT Inhibitor Protein #2 venetodax/ABT-199 (ABT)	
Concetration Molarity (M)	*M.tb CFUs (%)*
0.1 µM	78
1 µM	80
10 µM	60

HDT Inhibitor Protein #1 & #2 Combiznation	
HDT #1 (S) + HDT #2 (ABT) Concetration Molarity	*M.tb CFUs (%)*
0.1 µM S + 1 µM ABT	75
10 µM S + 1 µM ABT	30
10 µM	10

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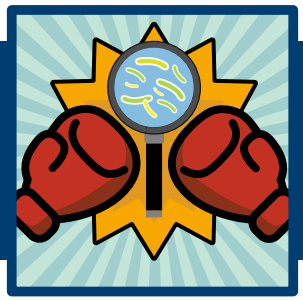
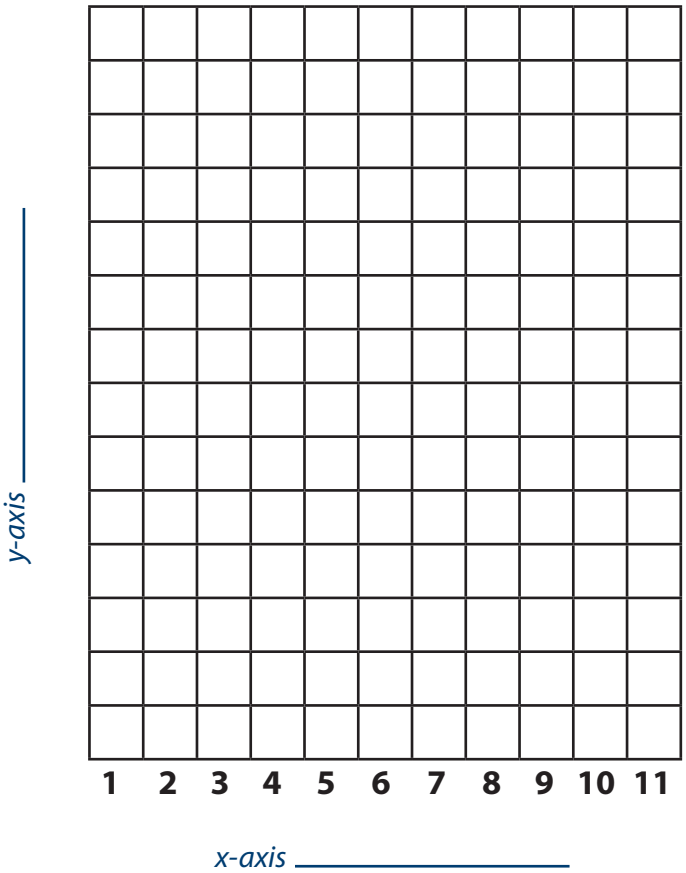


Title _____



Legend	
1	Control Group
2	0.1 µM S
3	1 µM S
4	10 µM S
5	0.1 µM ABT
6	1 µM ABT
7	10 µM ABT
8	1 µM S + 1 µM ABT
9	10 µM S + 1 µM ABT
10	10 µM S + 1 µM ABT

Research Question

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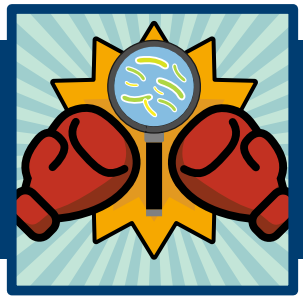

Claim/Hypothesis

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?

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