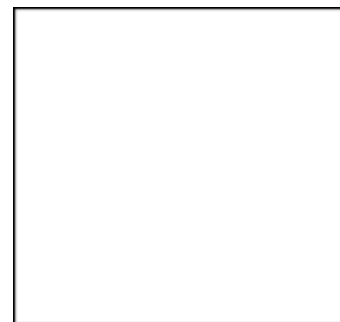


Name: _____ Teacher: _____ Period: _____ Date: _____

Review and Analysis Question Sheet

Our Question: What environmental conditions cause Halobacterium to turn on or off the genes coding for the protein, Bacteriorhodopsin (bR)?

1. Did your experiment answer “Our Question” or do you need more information? Explain.
2. Consider your class (compiled) data:
 - a. Compare and contrast the results to your own prediction(s).
 - b. Explain HOW/WHY these results supported and/or differed from your prediction(s).
3. Explain any variation in data. For example, if a team’s three final samples had different cell densities, what may have caused this?
4. Which manipulated/independent variable do you think had the greatest effect on Halo? Explain.
5. Which parts of your experimental design are you confident in? (What would you be sure to keep the same if you were to publish your procedure)?
6. How would you improve your procedure if you were required to repeat your experiment?
7. Make a simple sketch of your growth graph here.
*How does it compare to the graph for the light/dark experiment?



8. What would you need to know in order to create a network for an environmental factor other than the influence of dark and light on bR?

Connecting what we know about Mutants to our Lab Results.

9. Describe the pellets of 3 different Halobacterium mutant strains. What does this data show us about the genes being expressed in Halo? (Connect this data to the network you diagrammed in lesson 3.)

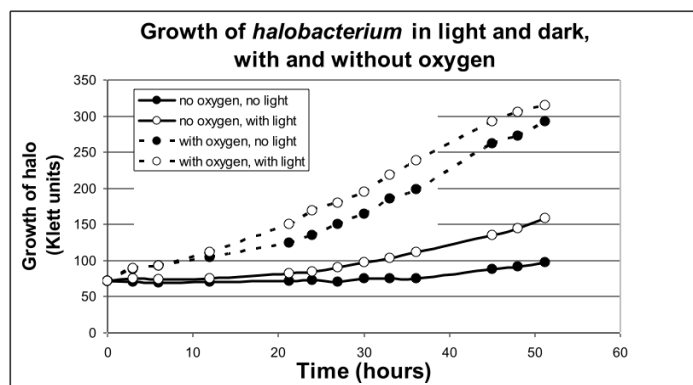
Mutant	Color
bat +	
bat -	
bop -	

10. How do the phenotypes of these mutants support what we know about the bR network?

11. Combine what you found out in the lab with the information you obtain by observing the mutant phenotypes. Write a final hypothesis to answer our question, “What environmental conditions cause Halobacterium to turn on or off the genes coding for the protein, Bacteriorhodopsin (bR)?”, keeping in mind the ‘because’ part of the hypothesis is the important part! (If...then...because....).

Show What You Know-Interpreting Data

Interpreting the graph:



12. Which condition(s) promote optimum growth of *Halobacterium salinarum*?

13. At 12 hours, which condition(s) would you suspect will be unsuccessful in growing *Halobacterium salinarum*? Which one condition do you suspect is the least successful? Explain.

14. Is it necessary to know what a 'Klett' is? Explain.

15. Write a summary paragraph describing the data this graph represents.

16. What additional information would a reader need to know, in order to fully interpret this graph?