**Final Reflection and Progress Report**

Due Tuesday, December 13 2016

1. Why can’t you see phages with a standard microscope? What is the resolution of an electron microscope compared with a light microscope?
2. What did we use to visualize the phage? What caused some phage to stain darker than others?
3. Calculate the capsid diameter and tail length of your phage (both unscaled and scaled) relative to the size bar, following the protocol guidelines in the phage discovery guide. How do your results compare to phages from other groups in your lab section? ***Don’t forget to include your EM picture and data analysis in your final research paper also.***
4. What can you learn from your observation of an electron micrograph of your phage? What could the size of the capsid tell you? What could the length of the tail tell you? What cluster do you think your phage might belong to?
5. If two phages look very similar by electron microscopy, would you predict that they will have similar genomes? Why?
6. By now, you should have archived your phage sample and entered your phage into the actinobacteriophage database following the guidelines found in Chapter 7 of the HHMI SEA Phage Discovery Guide (Protocol 7.2).
   1. Provide the details of your phage registration with this reflection (confirmation with a screenshot would work).
7. Overall, what do you think was your greatest accomplishment this semester?
   1. Reflect on the meaning and/or implications of your findings for your greatest accomplishment. Refer to the data or evidence that you have to support any claims that you make.
8. What final questions do you have about the results, the activities/experiments, and/or the research project?
9. What were the major issues or challenges you faced over the semester? What ideas do you have for future experiments? What would you do differently in the future and what *new* things could you do? You should try to propose ideas that are more than simply repeating the existing activity or experiment. ***Don’t forget to include your ideas in the discussion for your final research paper.***
10. As you reflect back on the project this semester, what do you think has changed about you as a student/scientist?
11. What do you think has changed regarding your attitude about science?