**Reflection 2**

Due Tuesday, October 4, 2016

By end of lab on Tuesday, September 27, you will have a novel phage that you are working to purify and characterize. The phage will either be one that you have isolated from an environmental sample or one that you have received from the Teaching Assistants that needs to be purified and characterized.

Use the information about your phage and the laboratory manual as a reference to address the questions below. You will also need to review the Ted Talk by Uri Alon: “Why truly innovative science demands a leap into the unknown” (found here: <https://www.ted.com/talks/uri_alon_why_truly_innovative_science_demands_a_leap_into_the_unknown?language=en> ).

1. How big is a typical phage? How does this size compare to the filter we use during the Capture protocol?
2. What is the average diameter of the plaques from your phage?
3. How many phage might exist in a single plaque?
4. If an isolated plaque is formed by an original single phage particle, how many infection events must have happened to form that plaque. State all your assumptions. Use the phagesdb.org to look up terms and information such as a typical burst size.
5. What did you accomplish in the previous week? Your answer should include a summary of your findings.
   1. Reflect on the meaning and/or implications of your findings for the work that you have done in lab thus far. Refer to the data or evidence that you have to support any claims that you make.
6. What issues or challenges did you face?
7. Where are you at compared to the overall goal for the project? Are you ahead or behind schedule?
8. As discussed in the Ted Talk by Dr. Uri Alon failure is a part of the process of science and an opportunity to explore the boundaries between what is known and unknown.
   1. How many times have you tried to capture a phage by direct plating?
   2. Have you successfully captured a phage from your environmental samples or did you collaborate with another group?
   3. Reflect on your experience with failure as a part of authentic research and consider the following as you reflect:
      1. What have you learned from your failure?
      2. Do you think it is important to fail sometimes? Why do you think you failed? How did you change in order to be successful?
      3. Overall, what do you think could be the best strategy to overcome failure and be successful?
9. Read the following article posted in Blackboard: “All the World’s a Phage,” a Science News article that discusses phages and their impact on the world.
   1. Based upon this article, what are the potential impacts of your semester project?
   2. State 2 questions that you have from the article.