

GEN Day 6 Interpretation Questions

Part I: General Characterization of P1 transductants

1. Interpret your GEN Day 5 results. What did you expect to see on your transductant plates? Did your results match what you expected? If not, propose an explanation.
2. You make a P1 lysate from your mutant strain Q1W1, which has the phenotypes Ara⁻, LacZ⁺-inducible, Kan^R, and use it to infect KBS1 cells. After selecting for Kan^R transductants, you patch on the same set of plates used on Day 3 (since you are testing for Ara, Kan, and Lac phenotypes as before).

When you analyze your patching plates the next day, you are confused to note two classes of transductants. One class is Ara⁻, LacZ⁺-inducible, Kan^R, (the same as Q1W1), which is the result you had hoped for. However, the plates also show a second class, which is phenotypically Ara⁺, LacZ⁻, Kan^R.

You go back through your previous days' calculations and realize the MOI you calculated for the transposon mutagenesis experiment that gave rise to the Q1W1 mutant was 5, instead of the 0.1 you had aimed for.

Interpret the results of this experiment by describing the location and orientation/reading frame of any transposon insertions that must have existed in your original mutant strain (Q1W1).

Part II: General Characterization of P1 transductants

1. Using the class data provided in lab, determine the map order of the *ara*, *leu* and *thr* genes. Be sure to show your calculations!