

7.003 Spring 2022
Day 3 In-Lab Questions

- 1) You are replica plating your mutagenized yeast library today.
 - A) What is the purpose of replica-plate? Can you think of an alternative way to replica-plate to achieve the same result? Why would one prefer replica-plate to some alternative methods?

 - B) What kind of plates are you using for replica plating? Explain the purpose of each type of plate you are using today.

- 2) Briefly describe or diagram the life cycle of *S. cerevisiae* and how it can go from haploid cells to diploid cells and back to haploid cells again (you may find your lecture notes and/or lab manual introduction helpful). Point out the parts of the life cycle relevant for our 7.003 mutagenesis screen.

3) Draw a diagram showing the overall yeast mating signal transduction pathway (you may find your lecture notes and/or lab manual introduction helpful). Briefly explain the role or type of each protein in the mating pathway. Can you think of any specific examples of similar homologous proteins in other species (e.g. humans)?

4) The genotype for the PPY295 yeast strain can be found in the Appendix on page 138 of the lab manual. List the specific gene allele(s) in the PPY295 genotype that are relevant for our purposes in our mTn3 transposon mutagenesis screen and explain why each allele you listed is useful or needed.

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