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PROBLEMS

8.1. Would a cell with a point mutation or a deletion be more likely to revert back to the original phenotype? Why?

8.2. Consider the metabolic pathway based on aspartic acid shown in Section 4.9. Describe the procedure you would use to obtain a methionine overproducer. Use mutation-selection procedures, detailing the experiments to be done and their sequence.

8.3. You wish to isolate temperature-sensitive mutants (e.g., those able to grow at 30°C but not at 37°C). Describe experiments to isolate such a cell.

8.4. An important method for screening for carcinogens is called the *Ames test*. The test is based on the potential for mutant cells of a microorganism to revert to a phenotype similar to the nonmutant. The rate of reversion increases in the presence of a mutagen. Many compounds that are mutagens are also carcinogens, and vice versa. Describe how you would set up an experiment and analyze the data to determine if nicotine is mutagenic.