

with sequence of the gene for the putative protease, to compare it with sequences of other genes for proteases? **Note:** There is no complete sequence available for this particular bacterium.

10. DNA microarray analysis of the patterns of mRNA abundance in different human cell types shows that the level of expression of almost every active gene is different. The patterns of mRNA abundance are so characteristic of cell type that can be used to type human cancer cells of unknown tissue origin. By definition, however, cancer cells are different from their non-cancerous precursor cells. How do you suppose then that patterns of mRNA expression can be used to determine the tissue source of a human cancer?

11. You have the amino acid sequence of a protein and wish to search for the gene encoding for this protein in a DNA library. Using this protein sequence, you deduce a particular DNA sequence that can encode for this protein. Why is it unwise to use only this DNA sequence you have deduced as the probe for isolating the gene encoding your protein of interest from the DNA library?

12. Sometimes the strategy for the expression of a target protein in a host organism involves synthesizing the protein as part of a fusion protein. Why is this approach useful? How is a fusion protein created?

13. You have sequenced a fragment of DNA and produced the gel shown in Figure 1. Near the top of the gel, there is a section where there are bands in all four lanes (indicated by the arrow). Which of the following mishaps would account for this phenomenon? Explain your answer.

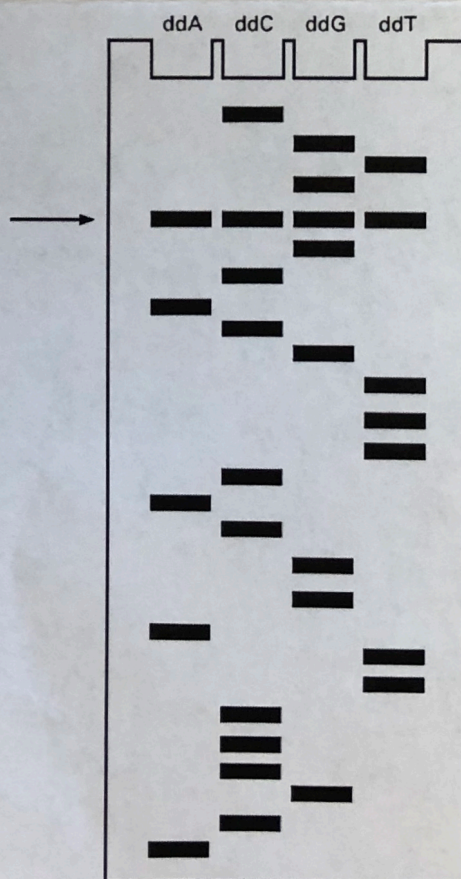


Figure 2