

Protein Synthesis (Nucleic Acids) Worksheet

1. What is the DNA template that gives the code for the mRNA segment with the nucleotide sequence

5'—G G G U U U A A A—3'

2. What is the sequence of amino acids specified by the following codons in mRNA (refer to the codon chart)?

5'—GUC AGC CCA—3'

3. Write the amino acid sequence produced by the following codons in mRNA (refer to the codon chart).

5'—AAU GCU UGU—3'

4. What order of amino acids would you expect in a peptide for the mRNA sequence shown below?

5'—UCA AAA GCC CUU—3'?

5. Where would protein synthesis stop in the following series of bases in an mRNA? Circle the answer.

5'—GGG AGC AGU UAG GUU—3'

6. An mRNA has the sequence of codons 5'—CCC AGA GCC—3'. If a base substitution in the DNA changes the mRNA codon of AGA to GGA, how is the amino acid sequence affected in the resulting protein?

7.

8.

9.

10.

11.

12.

Answers

1. 3'— C C C A A A T T T —5'

2. Val—Ser—Pro (or VSP)

3. Asn—Ala—Cys (or NAC)

4. Ser—Lys—Ala—Leu (or SKAL)

5.

5'—GGG AGC AGU **UAG** GUU—3'

6. Before mutation, the amino acid sequence is: Pro—Arg—Ala (or PRA)
After mutation, the amino acid sequence is: Pro—Gly—Ala (or PGA)