Mutations Practice Worksheet Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. Below is the base sequence for the normal protein for normal hemoglobin and the base sequence for the sickle cell hemoglobin.

Normal: GGG CTT CTT TTT

Sickle: GGG CAT CTT TTT

1. Transcribe and translate the normal and sickle cell DNA.
2. Identify this as a point or frameshift mutation. Explain.
3. If the base sequence read GGG CTT CTT AAA instead, would this result in sickle cell hemoglobin? Explain.

2. A geneticist found that a particular mutation had no effect on the protein coded by a gene.

What do you think is the most likely type of mutation in this gene? Why?

3. Look at the following sequence: THE FAT CAT ATE THE RAT. Delete the first H and regroup the letters in groups of three- write out the new groups of three. Does the sentence still make sense? What type of mutation is this an example of?

4. You have a DNA sequence that codes for a protein and is 105 nucleotides long. A frameshift mutation occurs at the 85th base- how many amino acids will be correct in this protein?

5. Given the following three mRNA sequences, 2 code for the same protein. Which two?

#1 AGU UUA GCA ACG AGA UCA

#2 UCG CUA GCG ACC AGU UCA

#3 AGC CUC GCC ACU CGU AGU

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