

### Mutations Worksheet KEY

Original DNA: T A C A C C T T G G C G A C G A C T  
Original mRNA: A U G U G G A A C C G C U G C U G A  
Original Amino Acid Sequence: Met-Trp-Asn-Arg-Cys-STOP

Mutated mRNA #1: A U G U A G A A C C G C U G C U G A  
Mutated AA Sequence: Met-STOP-Asn-Arg-Cys-STOP  
Likely Effects: Yes, altering the function of the protein.  
Mutation Type: point nonsense mutation

Mutated mRNA #2: A U G C U G G A A C C G C U G C U G A  
Mutated AA Sequence: Met-Leu-Glu-Pro-Leu-Leu  
Likely Effects: Yes, creating a mutant protein.  
Mutation Type: frameshift insertion mutation

Mutated mRNA #3: A U G U G G A A U C G C U G C U G A  
Mutated AA Sequence: Met-Trp-Asn-Arg-Cys-STOP  
Likely Effects: none  
Mutation Type: silent mutation

Mutated mRNA #4: A U G U G G A A C C G C U G A U G A  
Mutated AA Sequence: Met-Trp-Asn-Arg-STOP-STOP  
Likely Effects: Yes, prematurely stopping the formation of the protein so it won't be made.  
Mutation Type: point nonsense mutation

Mutated mRNA #5: A U G U G G A A C C C U G C U G A  
Mutated AA Sequence: Met-Trp-Asn-Pro-Ala-  
Likely Effects: Yes, creating a mutant protein  
Mutation Type: frameshift deletion mutation