

NAME \_\_\_\_\_

## Mutations Worksheet

### Deletion, Insertion & Substitution



There are several types of mutations:

- > **DELETION** (a base is lost/deleted)
  - Deletion & insertion may cause what's called a **FRAMESHIFT** mutation, meaning the **reading "frame"** changes, thus changing the amino acid sequence from this point forward
- > **INSERTION** (an extra base is added/inserted)
  - Deletion & insertion may cause what's called a **FRAMESHIFT** mutation, meaning the **reading "frame"** changes, thus changing the amino acid sequence from this point forward
- > **SUBSTITUTION** (one base is substituted for another)
  - If a substitution **changes** the amino acid, it's called a **MISSENSE** mutation
  - If a substitution **does not change** the amino acid, it's called a **SILENT** mutation
  - If a substitution **changes the amino acid to a "stop,"** it's called a **NONSENSE** mutation



Complete the boxes below. Classify each as **Deletion**, **Insertion** or **Substitution** **AND** as either **frameshift**, **missense**, **silent** or **nonsense** (**Hint**: Deletion & Insertion will always be frameshift).

Original DNA Sequence: T A C A C C T T G G C G A C G A C T ...

mRNA Sequence: A U G U G G A A C C G C U G C U G A

Amino Acid Sequence: MET - TRP - ASN - ARG - CYS - STOP

Mutated DNA Sequence #1 T A C A T C T T G G C G A C G A C T ...

What's the mRNA sequence? A U G U A G A A C C G C U G C U G A (Circle the change)

amino acid sequence? MET - STOP

Will there likely be effects? yes What type of mutation is this? point mutation - nonsense

Mutated DNA Sequence #2 T A C G A C C T T G G C G A C G A C T ...

What's the mRNA sequence? A U G C U G G A A C C G C U G C U G A (Circle the change)

amino acid sequence? MET - LEU - GLU - PRO - LEU - LEU

Will there likely be effects? yes What type of mutation is this? insertion - frameshift

Mutated DNA Sequence #3 T A C A C C T T A G C G A C G A C T ...

What's the mRNA sequence? A U G U G G A A C G C U G C U G A (Circle the change)

amino acid sequence? MET-TRP-ASN- ARG- CYS - STOP

Will there likely be effects? no What type of mutation is this? point mutation - silent

Mutated DNA Sequence #4 T A C A C C T T G G C G A C T A C T ...

What's the mRNA sequence? A U G U G G A A C C G C U G A U G A (Circle the change)

amino acid sequence? MET - TRP - ASN - ARG - STOP

Will there likely be effects? yes What type of mutation is this? point mutation - nonsense

# Gene Mutations And Proteins Answers

**Tao Wei**



## **Gene Mutations And Proteins Answers:**

## Decoding **Gene Mutations And Proteins Answers**: Revealing the Captivating Potential of Verbal Expression

In an era characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its ability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Gene Mutations And Proteins Answers**," a mesmerizing literary creation penned by a celebrated wordsmith, readers set about an enlightening odyssey, unraveling the intricate significance of language and its enduring affect our lives. In this appraisal, we shall explore the book is central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

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