

## RNA and Protein Synthesis Quiz PDF

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**Which of the following mutations involves a single nucleotide change that does not alter the amino acid sequence?**

- Missense mutation
- Nonsense mutation
- Frameshift mutation
- Silent mutation

**Which process converts mRNA into a polypeptide chain?**

- Transcription
- Replication
- Splicing
- Translation

**In which cellular location does transcription occur in eukaryotic cells?**

- Cytoplasm
- Ribosome
- mitochondria
- Nucleus

**Which of the following is NOT a stop codon?**

- UAA
- UGA
- AUG
- UAG

**What is the start codon for protein synthesis?**

- UAA

- UGA
- UAG
- AUG

**What is the primary function of tRNA?**

- To carry genetic information
- To form the ribosome
- To replicate DNA
- To transport amino acids

**Which steps are involved in the process of transcription? (Select all that apply)**

- Initiation
- Termination
- Translation
- Elongation

**Explain the process of translation, including the roles of mRNA, tRNA, and ribosomes.**

**How do epigenetic factors influence gene expression without altering the DNA sequence?**

**Explain the central dogma of molecular biology and its significance in protein synthesis.**

**Describe the differences between prokaryotic and eukaryotic gene expression regulation.**

**Which elements are involved in the regulation of gene expression in eukaryotes? (Select all that apply)**

- Enhancers
- Operons
- Transcription factors
- Silencers

**During transcription, which enzyme is responsible for synthesizing RNA?**

- DNA polymerase
- Ligase
- Helicase
- RNA polymerase

**Which of the following are types of point mutations? (Select all that apply)**

- Silent mutation
- Nonsense mutation
- Frameshift mutation
- Missense mutation

**Which of the following are components of a ribosome? (Select all that apply)**

- mRNA
- Proteins
- tRNA
- rRNA

**What are the characteristics of the genetic code? (Select all that apply)**

- Universal
- Ambiguous
- Specific
- Redundant

**Which type of RNA carries genetic information from DNA to the ribosome?**

- rRNA
- mRNA
- siRNA
- mRNA

**Discuss how a frameshift mutation can affect protein synthesis and provide an example.**

**Describe the role of RNA polymerase during transcription and how it interacts with DNA.**

**What are the functions of RNA in the cell? (Select all that apply)**

- Catalyzing protein synthesis
- Replicating DNA
- Transport amino acids
- Carrying genetic information