What are RNA Types and Functions?

Worksheet

The three main RNA types are mRNA (carries genetic instructions from DNA), tRNA (brings amino acids to the ribosome), and rRNA (forms the structural and catalytic core of ribosomes).

Questions

1. Which RNA type carries the genetic code from DNA to the ribosome?

A) tRNA
B) rRNA
C) mRNA
D) miRNA

2. Which RNA type has an anticodon?

A) mRNA
B) tRNA
C) rRNA
D) None of these

3. Which base replaces thymine in RNA?

A) Adenine
B) Guanine
C) Cytosine
D) Uracil

4. What is rRNA's main role?

A) Storing genetic information long-term
B) Forming the ribosome's core and catalyzing protein synthesis
C) Splitting DNA strands
D) Transporting oxygen

5. A gene's DNA template strand reads TAC-GGC-ATT. What is the mRNA transcript?

6. Which RNA type recognizes the mRNA codon AUG during translation?

7. A ribosome is made of proteins and RNA. Which RNA type is this?

8. Define: What does mRNA do?

9. Define: What does tRNA do?

10. Define: What does rRNA do?

Answer Key

1. C) mRNA - mRNA (messenger RNA) is the direct copy of the gene's coding sequence.

2. B) tRNA - tRNA's anticodon pairs with the mRNA codon to deliver the correct amino acid.

3. D) Uracil - RNA uses uracil instead of thymine, which DNA uses.

4. B) Forming the ribosome's core and catalyzing protein synthesis - rRNA combines with proteins to build ribosomes and catalyze peptide bonds.

5. RNA is complementary to the template strand, using U instead of T TA, AU, CG, GC, GC, CG, AU, TA, TA mRNA = AUG-CCG-UAA

6. AUG is the start codon, coding for methionine tRNA carries an anticodon (UAC) complementary to AUG That tRNA delivers methionine to the ribosome to begin translation

7. Ribosomes contain ribosomal RNA (rRNA) plus proteins rRNA catalyzes peptide bond formation between amino acids So the RNA component of a ribosome is rRNA

8. Carries the genetic code copied from DNA to the ribosome for protein synthesis.

9. Transfers specific amino acids to the ribosome, matching codons via its anticodon.

10. Forms the structural and catalytic core of ribosomes, joining amino acids into proteins.