

Activity 46: The Central Dogma and Protein Synthesis

Learning Objectives

Distinguish the locations and functions of transcription and translation

Use the genetic code to predict an amino acid sequence

Write an mRNA complementary sequence for a given genetic DNA sequence

Estimated Completion Time 60 Minutes

Instructor Information

Practice on predicting protein sequence using the genetic code. Directionality of the nucleic acid sequences is important.

ANSWERS TO QUESTIONS

1. Three
2. Alanine
3. a. Isoleucine b. Histidine c. Glycine
4. Leucine-valine-cysteine
5. Answers will vary. A nucleic acid code (or language) is being “translated” into an amino acid code (language).
6. Nucleus
7. Ribosome
8. mRNA
9. 3'UGCAUCAGUGCA5'
10. Cys-Ile-Ser-Ala

Activity 46: Skill Development

1. a. Lys-Gly-Lys b. Phe-Leu-Phe-Leu c. Tyr-Ile-Arg-Cys
2. Start-Tyr-Gly-Gly-Phe-Leu-Stop
3. a. 3'CTGAATCCG5' b. 3'ACGTTTGATCGA5' c. 3' TAGCTAGCTAGC5'
4. a. 5'ACACCCCAAUAA3' b. Thr-Pro-Gln-Stop