

From Gene to Protein

Chapter 17

1. Protein synthesis occurs in two stages: transcription and translation. State the purpose of each.
2. Why must the genetic code be written in triplets of nucleotides?
3. Describe the relationship between a DNA triplet, a codon, and an anticodon.
4. What is the evolutionary significance of the universal genetic code?
5. Briefly state what happens in the initiation, elongation and termination steps of transcription. Compare it to and contrast it with DNA replication.
6. Identify some key differences between transcription in prokaryotes and eukaryotes.
7. Why are promoters and transcription factors important to transcription?
8. Describe the advantage of the 5' cap and the poly(A) tail.
9. What is the difference between an intron and an exon?
10. Describe RNA splicing.
11. What is the advantage of alternative splicing?
12. How are introns important to evolution?
13. How is the elongation of the new polypeptide accomplished?
14. Briefly state what happens in the initiation, elongation, translocation, and termination steps of translation.
15. Identify some key differences between translation in prokaryotes and eukaryotes.
16. What is the reading frame and how is it established?
17. How do proteins get targeted to specific locations in the cell or for export?
18. Describe the different types of point mutations.