Chapter 36: RNA Synthesis and Regulation in Bacteria.

1. Define the three main types of RNA.

2. What are the nucleotides that are used to synthesize RNA?

3. What is the direction of RNA polymerization?

4. What is meant by the statement “RNA polymerization is thermodynamically assisted by PPi hydrolysis”?

5. Given an RNA sequence, e.g. pUUACCG, can you write the DNA sequence and label the “coding” and “template” strand?

6. What is a promoter? Can you describe the characteristics of a “promoter sequence”?

7. What is an operon? What is polycystronic?

8. What is a consensus sequence?

9. What is the function of the $\sigma$ unit of RNA polymerase?

10. RNA polymerase does not have a proofreading activity to correct errors resulting in a higher error frequency in the transcript than for DNA polymerase. Why is the higher frequency of RNA polymerase acceptable?

11. What is protein-independent termination of transcription?

12. What is protein-dependent termination?

13. In the regulation of the lac operon describe the function of the following: lac repressor, operators, escape synthesis, allolactose.

14. Describe the function of a camp regulatory protein (CRP) in gene regulation (many genes are regulated by CRP).

15. Know terms at the end of the chapter.