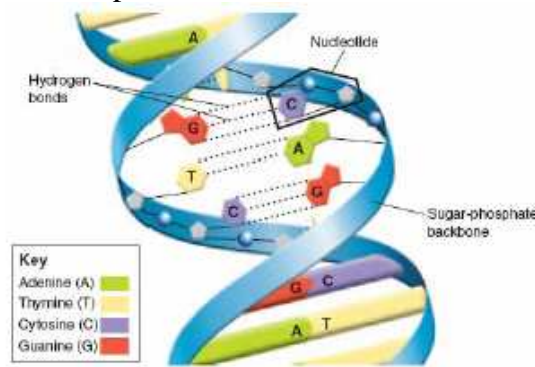


DNA-Protein Test Review

Ch. 12

Remember that DNA is the genetic material that is the basis of heredity, and the very sequence of nitrogen bases of DNA determine the traits and characteristics on all living

- 1) Avery's experiments showed
 - a. Avery and McCarty were able to conclude that the transforming agent from Griffith's experiments was in fact DNA, and can be prevented with Protein destroying agents
- 2) Be able to name and label parts of this picture



- 3) How are proteins made?
 - a. Through a 2 stage process:
 - i. Transcription
 - ii. Translation
- 4) How is the double helix unwound?
 - a. The enzyme Helicase unwinding and breaks the Hydrogen bonds between the base pairs opening the DNA forming the "point of origin"
- 5) What are chromosomes made of?
 - a. Nucleotides that build DNA. Each nucleotide is composed of a Deoxyribose sugar, phosphate, and one of the 4 bases
- 6) What are the 4 nitrogenous bases of DNA? How do they pair up?
 - a. Adenine, Thymine, Guanine, and Cytosine
 - b. The base pairing rules are A-T and G-C
- 7) What are the 4 nitrogenous bases of RNA? How do they pair up?
 - a. Adenine, Uracil, Guanine, and Cytosine
 - b. The base pairing rules are A-U and G-C
- 8) What are the different types of mutations and what do they do?
 - a. Chromosomal mutations- which affect multiple genes
 - b. DNA mutation which affect a single gene
- 9) What are the parts of a tRNA molecule?
 - a. Attachment site for the AA, and anticodon for attachment to mRNA
 - b. Acts as interpreter that carries AA to the correct codon
- 10) What are the three types of RNA and what do they do?
 - a. rRNA-ribosomal RNA, which makes-up/form a ribosome
 - b. tRNA- transfer RNA, which carries the Amino Acid to the Ribosome codon
 - c. MRNA-messenger RNA, which encodes the DNA's blueprint for a protein product

- 11) What did Chargaff state?
 - a. The concentrations of A and T...G and C are similar, therefore, they must pair together in the formation of the double-helix
- 12) What did Griffith observe?
 - a. The process of transformation was occurring between the harmless (live) and harmful (dead) strains of bacteria
- 13) What did Hershey and Chase conclude?
 - a. Concluded that DNA was in fact the hereditary material
- 14) What did Rosalind Franklin discover?
 - a. With her X-ray photograph she concluded DNA is a tightly coiled Helix
- 15) What did Watson and Crick discover?
 - a. Credited for establishing the structure of DNA
 - b. Concluded bases held together by H-Bonds
- 16) What does DNA polymerase do?
 - a. Adds the complimentary base to DNA
- 17) What does RNA polymerase do?
 - a. Opens the DNA molecule, attaches to DNA, and adds the complimentary base to mRNA
- 18) What happens during replication?
 - a. DNA is copied
- 19) What happens in transcription?
 - a. DNA is replicated into the mRNA
- 20) What happens in translation?
 - a. Decoding mRNA into proper AA sequence
 - b. The amino acid detaches as the tRNA attaches to the end of a
- 21) What is a codon chart and how is it used?
 - a. Chart used to decode mRNA in AA
- 22) What is a codon?
 - a. A sequence of 3 bases,
- 23) What is a nucleotide made of? (3 things)
 - a. Nitrogen-Base, phosphate, and sugar
 - b. Nucleotide is building block of DNA
- 24) What is a promoter?
 - a. Contains TATA box, site of initiation of Transcription
- 25) What is a purine? What does it look like? Give examples of purines.
 - a. Purines are the double ring bases, such as G and A
- 26) What is a pyrimidine? What does it look like? Give examples of pyrimidines.
 - a. Pyrimidines are the single ring bases, such as C and T
- 27) What is an anticodon?
 - a. During translation the anticodon ensures that the proper AA is delivered to mRNA
- 28) What is replication?
 - a. Process of copying DNA, prior to cell division
- 29) What is the complementary DNA strand to 5' – ATTCAGCGA – 3' ?
- 30) What is the complementary RNA strand to 5' – ATTCAGCGA – 3' ?
- 31) What is the lagging strand? What is the leading strand?
 - a. Lagging strand is the strand growing away from the forks and contains Okasaki fragments
 - b. Leading strand grows toward the fork and is continuous, NO Fragments
- 32) What sugar is in DNA? What sugar is in RNA?
 - a. DNA-Deoxyribose
 - b. RNA-Ribose
- 33) Where is DNA located in eukaryotes? In prokaryotes?

- a. Eukaryotes-Nucleus
- b. Prokaryotes-Cytoplasm, b/c no nucleus