Class Notes 3

RNA and the Central Dogma

I. Function of DNA

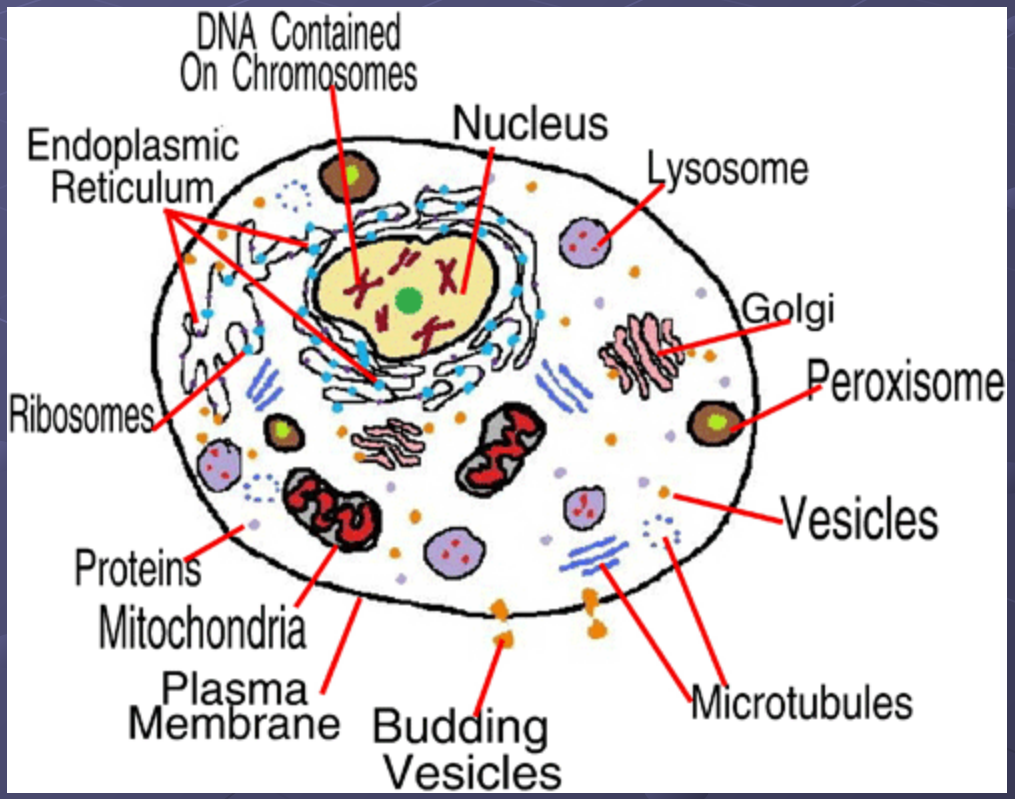
A. The DNA is a set of instructions for the ribosomes to follow as they make proteins (protein synthesis)

B. However the DNA is located in the nucleus and can't get out.

C. The ribosomes are located outside of the nucleus in the cytoplasm.

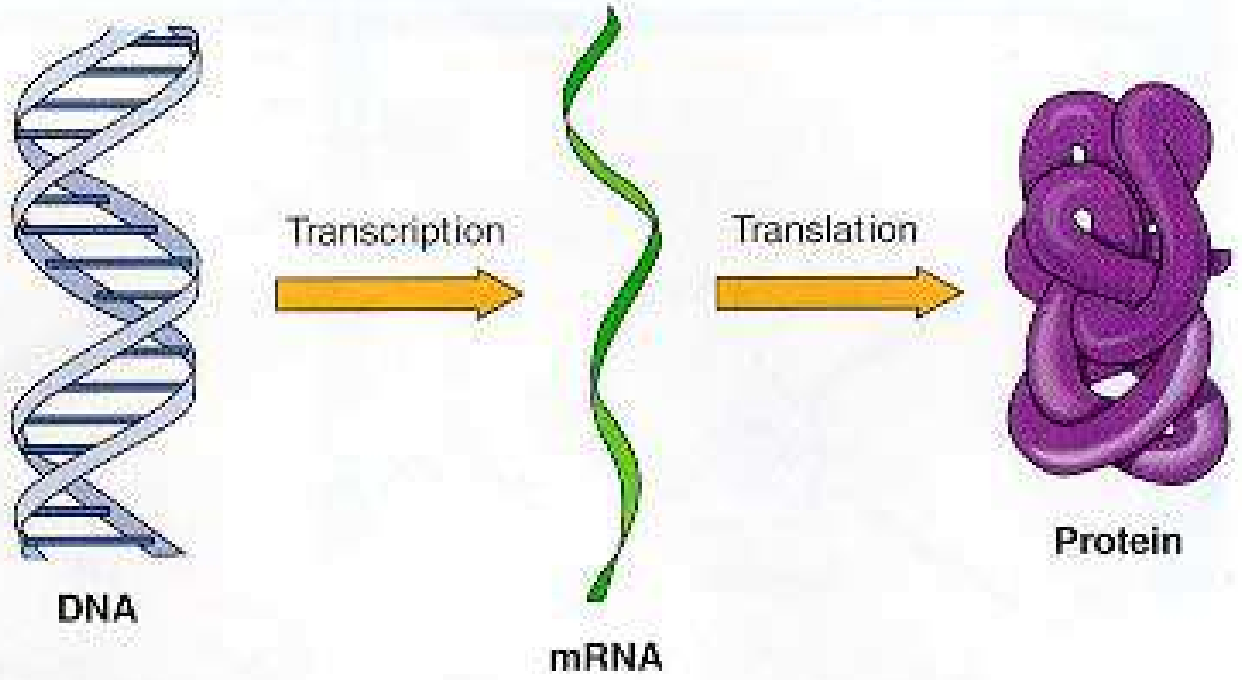
II. Central Dogma

Question: How can the DNA instructions get to the ribosomes??????



Answer: Transcription!!!!!!!!!!

A. DNA is transcribed (copied) into a type of RNA called mRNA.
B. The mRNA can leave the nucleus and go to the ribosome to be translated into a sequence of amino acids called a protein.
C. DNA→RNA→protein is called the central dogma of molecular biology



Central Dogma of Gene Expression.

Through the production of mRNA (transcription) and the synthesis of proteins (translation), the information contained in DNA is expressed.

III. RNA

A. RNA is a nucleic acid, like DNA except:
2. RNA is single stranded, DNA is _____ _____.
3. RNA has the sugar ribose, DNA has the sugar _____.
4. RNA has the nitrogen bases U (uracil), A, C and G, DNA has __ , __ , __ &__.

IV. Types of RNA

A. There are 3 types of RNA.
2. mRNA- messenger, is a copy of DNA that can go to the ribosome
3. rRNA – ribosomal, links the amino acids
4. tRNA – transfer, brings amino acids to the ribosomes

Summary

Why is mRNA needed for protein synthesis?

What are the differences between DNA and RNA?