

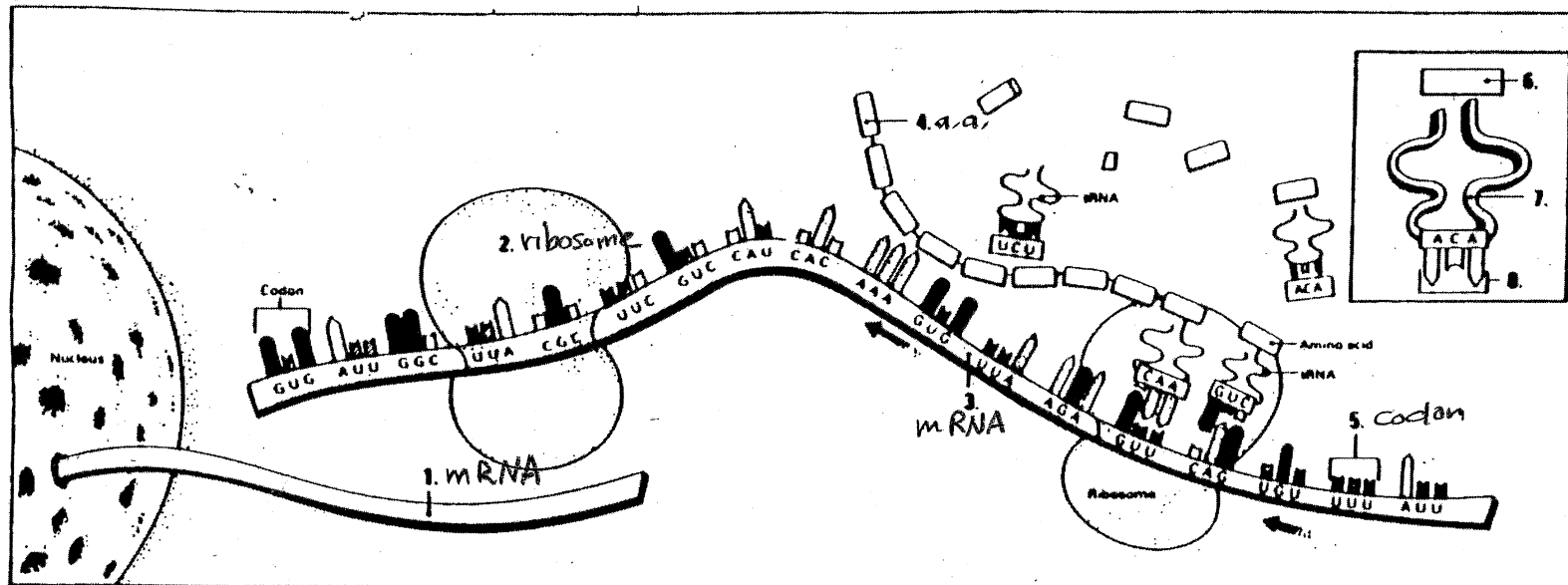
Protein Synthesis Review

Transcription is the process of taking the DNA code and turning it into mRNA. It occurs in the nucleus. The area of one gene on DNA becomes unzipped by RNA polymerase. RNA nucleotides float into place, arranged by complimentary base pairing. In the case of the mRNA, uracil pairs with adenine and guanine with cytosine. This reaction is catalyzed by RNA polymerase. The mRNA detaches from the DNA and leaves the nucleus through a pore. The result of this process is a m RNA molecule that represents a complementary copy of one gene of DNA.

Translation is the process of mRNA, with the help of t RNA, assembling amino acids at the ribosome into a protein. Once the mRNA is in place at that organelle, a tRNA molecule with a anti-codon to match the mRNA's codon floats in with its attached amino acid. (A series of three nucleotides on mRNA is called a codon and is enough information to code for 1 of the 20 amino acids.) A second specific tRNA molecule floats in with its attached amino acid and an enzyme catalyzes a condensation reaction forming a covalent bond between two amino acids. This bond is also called a peptide bond because it is used in forming a protein. The tRNA leaves the amino acid behind and goes to retrieve another. The process repeats until a Stop codon is reached, which does not act as a code for an amino acid.

Thus, the gene on DNA has been used to create a strand of mRNA that in turn determines the order of amino acids in a protein. That protein can serve one of many functions in the organism, such as

hormones, transport proteins, antibodies, etc. (many possible answers)



a.a.
tRNA
anti-codon