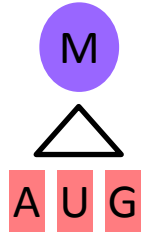


What is translation?

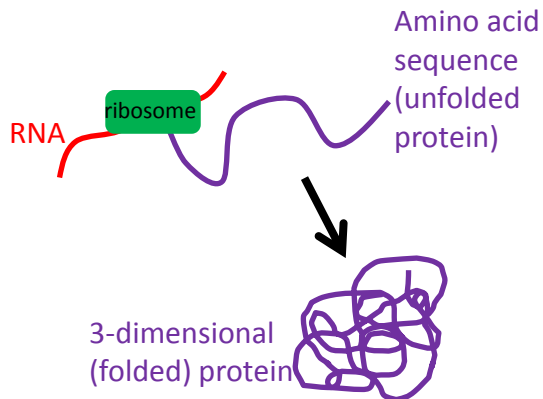
Translation:



After RNA has been produced, the next step of gene expression is translating RNA into amino acids.

Amino acids are the building blocks of protein. This step differs from DNA → RNA, because 3 RNA nucleotides code for one amino acid. In this example, the RNA 3-letter code sequence of AUG will translate into an amino acid called methionine (abbreviated M).

Translation takes place in the cytoplasm:



In contrast to only 4 building blocks in DNA or RNA, there are 20 amino acids that are used to build proteins. This creates diversity in what kinds of proteins that can be made. Future content will be posted to discuss the different amino acids.

In this diagram, the green rectangle, labeled ribosome, represents a piece of “machinery” within the cell that creates an amino acid sequence from an RNA sequence (translation).

After the amino acid sequence is produced, we have a protein. This protein can fold into a 3-dimensional (3-D) structure. There are often modifications that occur during and after this step but in general the 3-D folded protein is ready to perform its job in the cell. Just like many RNA copies can be produced from one gene (DNA), many proteins can be produced from one RNA.