

TRANSLATION

Translation: mRNA → Protein

1. The process by which _____ creates proteins by translating the instructions on the mRNA strand into a chain of _____.
2. Every sequence of 3 mRNA nucleotides is called a _____, and each amino acid is coded for by one or more codons
3. _____ move down the mRNA strand, adding amino acids as it translates each codon
The amino acid chain begins to take shape as it is forming and becomes a protein
4. The amino acid chain is completed when the ribosome reads a _____
5. What are proteins composed of?
6. In a molecule of double-stranded DNA, the amount of guanine (G) present will always be equal to the amount of what other nitrogen containing base?
7. What is a codon?
8. Explain what the process of translation is
9. What organelle is responsible for translating mRNA into amino acids in order to create proteins

Codon tables are used to translate nucleotides of mRNA into amino acids of a protein

		Second Base in Codon				
		U	C	A	G	
U	U	Phenylalanine (Phe)	Serine (Ser)	Tyrosine (Tyr)	Cysteine (Cys)	U
		Phenylalanine (Phe)	Serine (Ser)	Tyrosine (Tyr)	Cysteine (Cys)	C
		Leucine (Leu)	Serine (Ser)	Stop Codon	Stop Codon	A
		Leucine (Leu)	Serine (Ser)	Stop Codon	Tryptophan (Trp)	G
C	C	Leucine (Leu)	Proline (Pro)	Histidine (His)	Arginine (Arg)	U
		Leucine (Leu)	Proline (Pro)	Histidine (His)	Arginine (Arg)	C
		Leucine (Leu)	Proline (Pro)	Glutamine (Glu)	Arginine (Arg)	A
		Leucine (Leu)	Proline (Pro)	Glutamine (Glu)	Arginine (Arg)	G
A	A	Isoleucine (Ile)	Threonine (Thr)	Asparagine (Asn)	Serine (Ser)	U
		Isoleucine (Ile)	Threonine (Thr)	Asparagine (Asn)	Serine (Ser)	C
		Isoleucine (Ile)	Threonine (Thr)	Lysine (Lys)	Arginine (Arg)	A
		Methionine (Met)	Threonine (Thr)	Lysine (Lys)	Arginine (Arg)	G
G	G	Valine (Val)	Alanine (Ala)	Aspartic Acid (Asp)	Glycine (Gly)	U
		Valine (Val)	Alanine (Ala)	Aspartic Acid (Asp)	Glycine (Gly)	C
		Valine (Val)	Alanine (Ala)	Glutamic Acid (Glu)	Glycine (Gly)	A
		Valine (Val)	Alanine (Ala)	Glutamic Acid (Glu)	Glycine (Gly)	G

Practice: use the codon table above to figure out what amino acids would form

- 1) AUG
- 2) GUA-CGA-GCA
- 3) ACGAGCUGA