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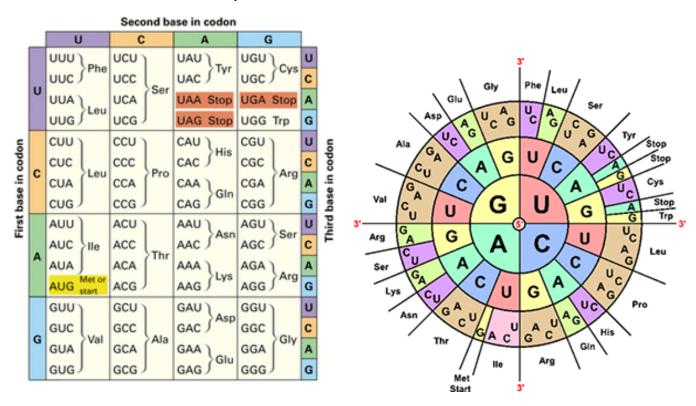
Protein Synthesis and Codons Practice

Protein synthesis is the process where a sequence of DNA is used to build a protein from individual amino acids. The first step in this process is called **TRANSCRIPTION**, where a coding region of DNA is converted to messenger RNA (mRNA). During transcription, mRNA is made from the DNA sequence following the base pair rule, except RNA does not contain the base **T**hymine, but instead has **U**racil. The mRNA then leaves the nucleus and goes to a ribosome in the cell's cytoplasm. The ribosome reads the message three bases at a time, called a **CODON**. Each codon will specify a single amino acid. The amino acids are joined together and folded into a protein, a process called **TRANSLATION**

Key Points

- DNA is used to make a copy of mRNA (transcription)
- mRNA leaves the nucleus and goes to ribosomes
- 3 bases = codon
- 1 codon = a single amino acid
- A chain of amino acids = a protein
- Protein synthesis is also called translation

Biologists use a codon chart or a codon wheel to determine the amino acids. Amino acids are usually abbreviated on these charts as three letter words, like Cys and Ser.



1. Use the codon chart to write the amino acid that corresponds to each codon found in mRNA:

CCC	AGU	
C A G	UAC	
GAA	CGU	
U U U	C C A	

written	, but the	codo	on ch	art on	lly sh	ows	the fi	rst thr	ee le	etters.									
	proline valine							gly	cine										
								phenylalanine											
							arginine												
3. A sir	ngle codo N.	n is	used	d to siç	gnal t	he b	eginn	ing o	f pro	tein s	ynthes	sis. It	is co	mmor	nly c	alled t	the S⊺	ΓART	
	Locate t	he s	tart o	codon	on th	ne ch	art. V	Vhat a	are th	ne thre	ee bas	ses c	of this	codor	n? _				
4. The	re are thr What are														cod	ons.			
	each seq e codon c										ntary	RNA	sequ	ence	unde	ernea	th the	letter	s, then
	$DNA \to$	T	A	C	C	A	T	G	G	A	A	T	T	A	C	T			
	$RNA \to$																		
Amino	Acids →																		
	$DNA \to$	T	T	C	A	A	T	G	G	T	C	T	A	G	G	G			
	$RNA \to$																		
Amino	Acids →																		
	$DNA \to$	A	C	A	T	T	T	C	A	G	A	C	C	G	T	C			
	$RNA \to$																		
Amino	Acids →																		

2. Write the CODON that corresponds with each amino acid. There may be more than one. The full names are