

21B – AMINO ACIDS

Analysis

Table 1 – RNA sequence

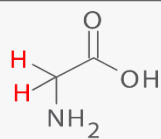
	AUG	UCU	UGC	GAC	GGC	GCA	ACC	GUC	AAC	CUA	UAG
Amino Acid											

Questions

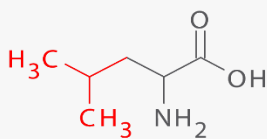
1. What organic functional groups do all amino acids have in common?
2. What portion of each of those groups must be released in order to form a peptide bond that joins amino acids together, and what product is formed from the released material?
3. Why is the reaction that combines amino acids called "dehydration synthesis"?
4. Suppose there is a mistake in the mRNA sequence, and GAC is replaced with GAU. Is the protein chain affected? Why or why not?
5. Suppose there is a mistake in the mRNA sequence, and UGC is replaced with UGA. Is the protein chain affected? Why or why not?

common amino acids found in nature

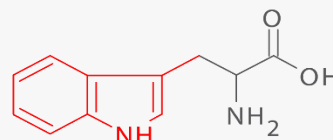
non-polar



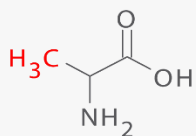
glycine



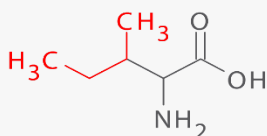
leucine



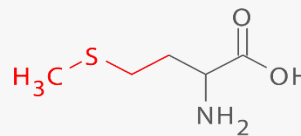
tryptophan



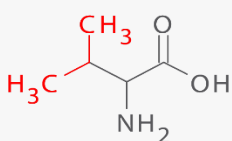
alanine



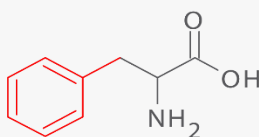
isoleucine



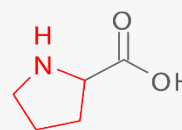
methionine



valine

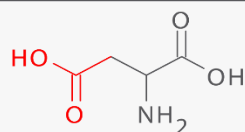


phenylalanine

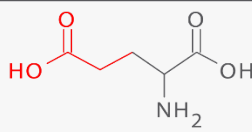


proline

acidic

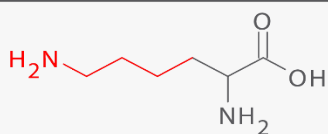


aspartic acid

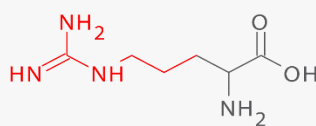


glutamic acid

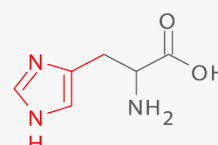
basic



lysine

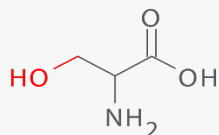


arginine

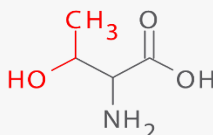


histidine

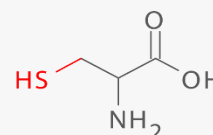
polar



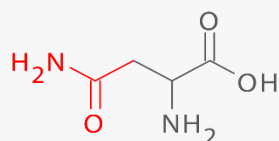
serine



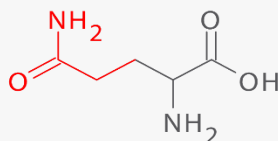
threonine



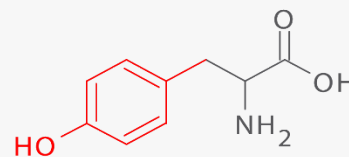
cysteine



asparagine

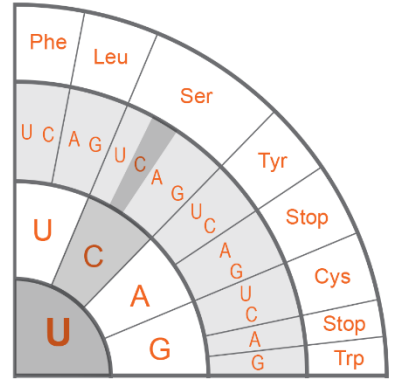
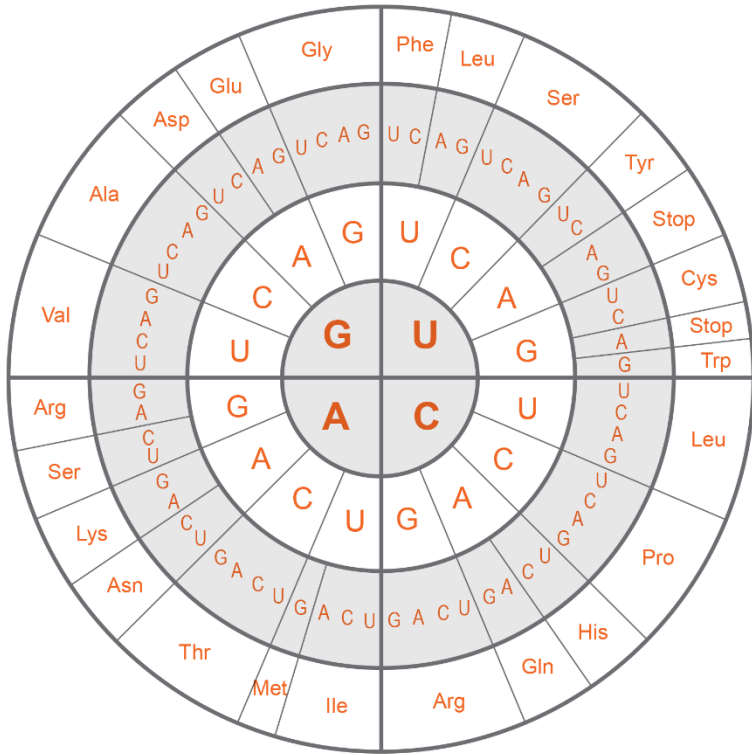


glutamine



tyrosine

The Genetic Code:



Read circle from inside to outside.
UCC = Serine

	U		C		A		G	
U	UUU	Phenylalanine Phe	UCU	Serine Ser	UAU	Tyrosine Tyr	UGU	Cysteine Cys
	UUC		UCC		UAC	UGC	Stop	
	UUA	Leucine Leu	UCA		UAA	Stop	UGA	Stop
	UUG		UCG		UAG	UGG	Tryptophan Trp	
C	CUU	Leucine Leu	CCU	Proline Pro	CAU	Histidine His	CGU	Arginine Arg
	CUC		CCC		CAC	CGC		
	CUA		CCA		CAA	CGA		
	CUG		CCG		CAG	CGG		
A	AUU	Isoleucine Ile	ACU	Threonine Thr	AAU	Asparagine Asn	AGU	Serine Ser
	AUC		ACC		AAC	AGC		
	AUA		ACA		AAA	Lysine Lys	AGA	Arginine Arg
	AUG	Methionine / start	ACG		AAG	AGG		
G	GUU	Valine Val	GCU	Alanine Ala	GAU	Aspartic acid Asp	GGU	Glycine Gly
	GUC		GCC		GAC	GGC		
	GUA		GCA		GAA	GGA		
	GUG		GCG		GAG	GGG		