

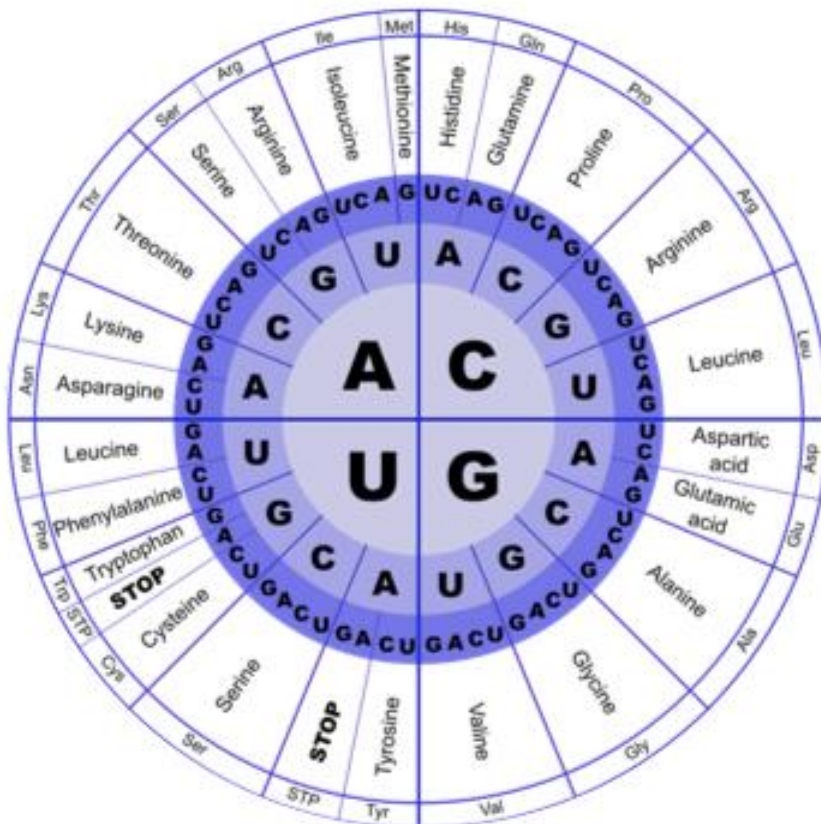
mRNA Codon Wheel/Codon Table Reference Charts

Use the following charts to help you translate mRNA codons into amino acids for activities within this module. Print and keep as a reference.

Either chart can be used to find the same answers; use the one that is easiest for you to follow.

Note: These charts are to be used with mRNA codons. If you start with a DNA codon or an anti-codon, you need to convert it to mRNA to work with these tables.

mRNA Codon Wheel



How to use the codon wheel to find amino acids from mRNA:

Start at center. Move outwards, reading each letter of the mRNA codon.

Examples:

AGC = serine

CGA = arginine

Stop codons do not code for any amino acid: UAA, UAG, and UGA.

mRNA Codon Table

		2 nd base								
		U		C		A		G		
1 st base	U	UUU	Phenylalanine	UCU	Serine	UAU	Tyrosine	UGU	Cysteine	U
		UUC	Phenylalanine	UCC	Serine	UAC	Tyrosine	UGC	Cysteine	C
		UUA	Leucine	UCA	Serine	UAA	Stop	UGA	Stop	A
		UUG	Leucine	UCG	Serine	UAG	Stop	UGG	Tryptophan	G
C	CUU	Leucine	CCU	Proline	CAU	Histidine	CGU	Arginine	U	
	CUC	Leucine	CCC	Proline	CAC	Histidine	CGC	Arginine	C	
	CUA	Leucine	CCA	Proline	CAA	Glutamine	CGA	Arginine	A	
	CUG	Leucine	CCG	Proline	CAG	Glutamine	CGG	Arginine	G	
A	AUU	Isoleucine	ACU	Threonine	AAU	Asparagine	AGU	Serine	U	
	AUC	Isoleucine	ACC	Threonine	AAC	Asparagine	AGC	Serine	C	
	AUA	Isoleucine	ACA	Threonine	AAA	Lysine	AGA	Arginine	A	
	AUG	Methionine (Start)	ACG	Threonine	AAG	Lysine	AGG	Arginine	G	
G	GUU	Valine	GCU	Alanine	GAU	Aspartic Acid	GGU	Glycine	U	
	GUC	Valine	GCC	Alanine	GAC	Aspartic Acid	GGC	Glycine	C	
	GUA	Valine	GCA	Alanine	GAA	Glutamic Acid	GGA	Glycine	A	
	GUG	Valine	GCG	Alanine	GAG	Glutamic Acid	GGG	Glycine	G	

How to use the codon table to find amino acids from mRNA:

Find row (left) with 1st base of mRNA codon. Match with column (top) of second base of mRNA codon. Find row (right) with 3rd base to determine amino acid.

Examples:

AGC = serine
CGA = arginine

Stop codons do not code for any amino acid: UAA, UAG, and UGA.

Same Codon Table, but with abbreviated Amino Acids:

		Second letter								
		U		C		A		G		
First letter	U	UUU] Phe	UCU] Ser	UAU] Tyr	UGU] Cys	U
		UUC		UCC		UAC		UGC		C
		UUA	] Leu	UCA	UAA	Stop	UGA	Stop	A
		UUG		UCG	UAG	Stop	UGG	Trp	G	
C	CUU	] Leu	CCU	] Pro	CAU	] His	CGU	] Arg	U
	CUC		CCC		CAC		CGC		C	
	CUA	] Leu	CCA	CAA	] Gin	CGA	] Arg	A	
	CUG		CCG	CAG		CGG		G		
A	AUU	] Ile	ACU	] Thr	AAU	] Asn	AGU	] Ser	U
	AUC		ACC		AAC		AGC		C	
	AUA	] Met	ACA	AAA	] Lys	AGA	] Arg	A	
	AUG		ACG	AAG		AGG		G		
G	GUU	] Val	GCU	] Ala	GAU	] Asp	GGU	] Gly	U
	GUC		GCC		GAC		GGC		C	
	GUA	] Val	GCA	GAA	] Glu	GGA	] Gly	A	
	GUG		GCG	GAG		GGG		G		