

Amino Acids

1. Alanine
2. Arginine
3. Asparagine
4. aspartic acid
5. Cysteine
6. glutamic acid
7. Glutamine
8. Glycine
9. Histidine
10. Isoleucine
11. leucine
12. lysine
13. Methionine
14. phenylalanine
15. Proline
16. Serine
17. Tryptophan
18. Tyrosine
19. Threonine
20. valine

Amino Acids

1.	Alanine	(Ala)	[A]
2.	Arginine	(Arg)	[R]
3.	Asparagine	(Asn)	[N]
4.	Aspartic acid	(Asp)	[D]
5.	Cysteine	(Cys)	[C]
6.	Glutamic acid	(Glu)	[E]
7.	Glutamine	(Gln)	[Q]
8.	Glycine	(Gly)	[G]
9.	Histidine	(His)	[H]
10.	Isoleucine	(Ile)	[I]
11.	Leucine	(Leu)	[L]
12.	Lysine	(Lys)	[K]
13.	Methionine	(Met)	[M]
14.	Phenylalanine	(Phe)	[F]
15.	Proline	(Pro)	[P]
16.	Serine	(Ser)	[S]
17.	Tryptophan	(Trp)	[W]
18.	Tyrosine	(Tyr)	[Y]
19.	Threonine	(Thr)	[T]
20.	Valine	(Val)	[V]

Codon Bingo

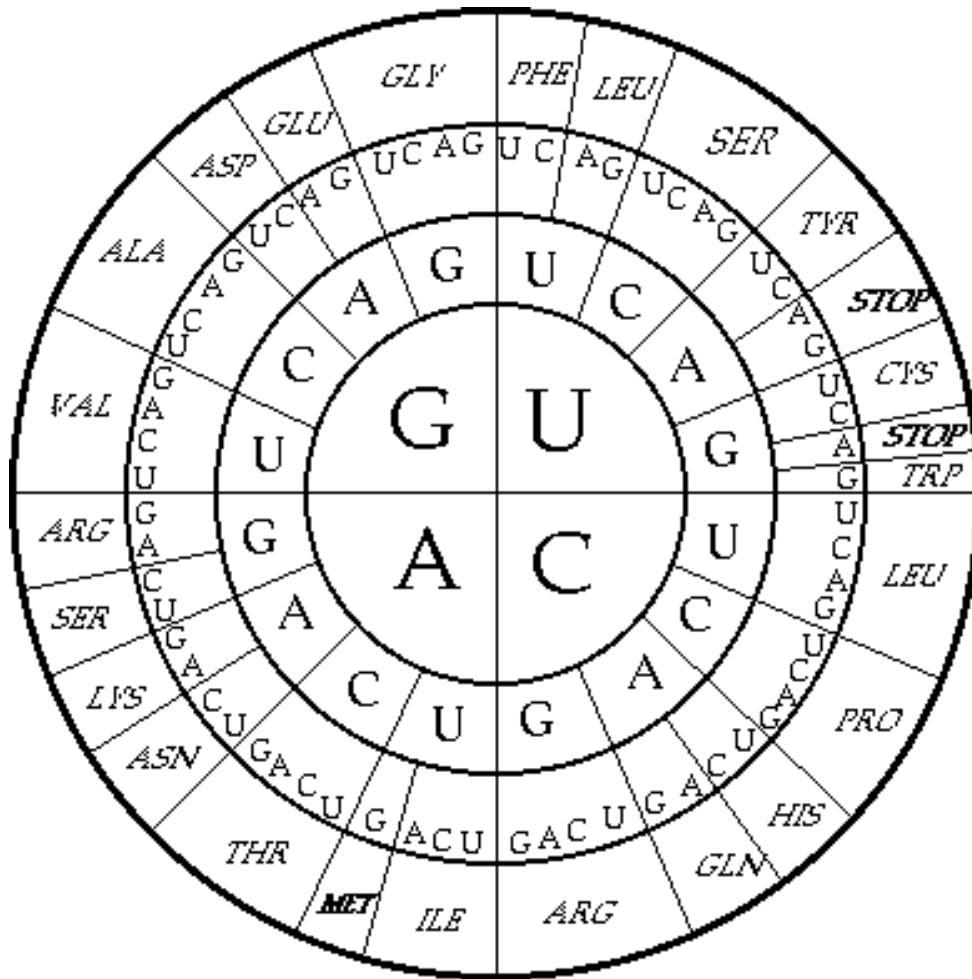
		Free Space		

		Second base				
		U	C	A	G	
First base (5' end)	U	UUU	UCU	UAU	UGU	U
		UUC	UCC	UAC	UGC	C
		UUA	UCA	UAA Stop	UGA Stop	A
		UUG	UCG	UAG Stop	UGG Trp	G
	C	CUU	CCU	CAU	CGU	U
		CUC	CCC	CAC	CGC	C
		CUA	CCA	CAA	CGA	A
		CUG	CCG	CAG	CGG	G
	A	AUU	ACU	AAU	AGU	U
		AUC	ACC	AAC	AGC	C
		AUA	ACA	AAA	AGA	A
		AUG Met or start	ACG	AAG	AGG	G
G	GUU	GCU	GAU	GGU	U	
	GUC	GCC	GAC	GGC	C	
	GUA	GCA	GAA	GGA	A	
	GUG	GCG	GAG	GGG	G	

1. Alanine (Ala) [A]
2. Arginine (Arg) [R]
3. Asparagine (Asn) [N]
4. Aspartic acid (Asp)[D]
5. Cysteine (Cys) [C]
6. Glutamic acid(Glu) [E]
7. Glutamine (Gln) [Q]
8. Glycine (Gly) [G]
9. Histidine (His) [H]
10. Isoleucine (Ile) [I]
11. Leucine (Leu) [L]
12. Lysine (Lys) [K]
13. Methionine (Met) [M]
14. Phenylalanine (Phe) [F]
15. Proline (Pro) [P]
16. Serine (Ser) [S]
17. Tryptophan (Trp) [W]
18. Tyrosine (Tyr) [Y]
19. Threonine (Thr) [T]
20. Valine (Val) [V]

		Second base						
		U	C	A	G			
First base (5' end)	U	UUU	UCU	UAU	UGU	U	Third base (3' end)	
		UUC	UCC	UAC	UGC			C
		UUA	UCA	UAA Stop	UGA Stop			A
		UUG	UCG	UAG Stop	UGG Trp			G
	C	CUU	CCU	CAU	CGU	U		
		CUC	CCC	CAC	CGC	C		
		CUA	CCA	CAA	CGA	A		
		CUG	CCG	CAG	CGG	G		
	A	AUU	ACU	AAU	AGU	U		
		AUC	ACC	AAC	AGC	C		
		AUA	ACA	AAA	AGA	A		
		AUG Met or start	ACG	AAG	AGG	G		
	G	GUU	GCU	GAU	GGU	U		
		GUC	GCC	GAC	GGC	C		
		GUA	GCA	GAA	GGA	A		
		GUG	GCG	GAG	GGG	G		

D R <i>AAG</i> UUC phenylalanine	D R <i>TAA</i> AUU isoleucine	D R <i>AGA</i> UCU serine	D R <i>TGA</i> ACU threonine
D R <i>AAT</i> UUA leucine	D R <i>TAG</i> AUC isoleucine	D R <i>AGG</i> UCC serine	D R <i>TGG</i> ACC threonine
D R <i>AAC</i> UUG leucine	D R <i>TAT</i> AUA isoleucine	D R <i>AGT</i> UCA serine	D R <i>TGT</i> ACA threonine
D R <i>GAA</i> CUU leucine	D R <i>TAC</i> AUG methionine	D R <i>AGG</i> UCG serine	D R <i>TGC</i> ACG threonine
D R <i>GAG</i> CUC leucine	D R <i>CAA</i> GUU valine	D R <i>GGA</i> CCU proline	D R <i>CGA</i> GCU alanine
D R <i>GAT</i> CUA leucine	D R <i>CAG</i> GUC valine	D R <i>GGG</i> CCC proline	D R <i>CGG</i> GCC alanine
D R <i>AAA</i> UUU phenylalanine	D R <i>CAI</i> GUA valine	D R <i>GGT</i> CCA proline	D R <i>CGI</i> GCA alanine
D R <i>GAC</i> CUG leucine	D R <i>CAC</i> GUG valine	D R <i>GGC</i> CCG proline	D R <i>CGC</i> GCG alanine
D R <i>ATA</i> UAU tyrosine	D R <i>TTA</i> AAU asparagine	D R <i>CTI</i> GAA glutamic acid	D R <i>TCA</i> AGU serine
D R <i>ATG</i> UAC tyrosine	D R <i>TTG</i> AAC asparagine	D R <i>CTC</i> GAG glutamic acid	D R <i>TCG</i> AGC serine
D R <i>ATT</i> UAA stop pick another card	D R <i>TTT</i> AAA lysine	D R <i>ACA</i> UGA stop pick another card	D R <i>TCT</i> AGA arginine
D R <i>ATC</i> UAG stop pick another card	D R <i>TTC</i> AAG lysine	D R <i>ACC</i> UGG tryptophan	D R <i>TCC</i> AGG arginine
D R <i>GTA</i> CAU histidine	D R <i>CTA</i> GAU aspartic acid	D R <i>GCA</i> CGU arginine	D R <i>CCA</i> GGU glycine
D R <i>GTC</i> CAC histidine	D R <i>CTG</i> GAC aspartic acid	D R <i>GCG</i> CGC arginine	D R <i>CCG</i> GGC glycine
D R <i>GTT</i> CAA glutamine	D R <i>ACA</i> UGU cysteine	D R <i>GCT</i> CGA arginine	D R <i>CCT</i> GGA glycine
D R <i>GTC</i> CAG glutamine	D R <i>ACG</i> UGC cysteine	D R <i>GCC</i> CGG arginine	D R <i>CCC</i> GGG glycine



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