

Amino acid	Abbreviation		Molecular weight	Polarity of R group
	3-letter	1-letter		
Alanine	ala	A	89.1	Non-polar
Arginine	arg	R	174.2	Positive polar
Asparagine	asn	N	132.1	Uncharged polar
Aspartic acid	asp	D	133.1	Negative polar
Cysteine	cys	C	121.2	Uncharged polar
Glutamic acid	glu	E	147.1	Negative polar
Glutamine	gln	Q	146.2	Uncharged polar
Glycine	gly	G	75.1	Uncharged polar
Histidine	his	H	155.2	Positive polar
Isoleucine	ile	I	131.2	Non-polar
Leucine	leu	L	131.2	Non-polar
Lysine	lys	K	146.2	Positive polar
Methionine	met	M	149.2	Non-polar
Phenylalanine	phe	F	165.2	Non-polar
Proline	pro	P	115.1	Non-polar
Serine	ser	S	105.1	Uncharged polar
Threonine	thr	T	119.1	Uncharged polar
Tryptophan	trp	W	204.2	Non-polar
Tyrosine	tyr	Y	181.2	Uncharged polar
Valine	val	V	117.1	Non-polar

Table 1: The twenty amino acids that occur in proteins (from Tablet 8.1 in GENETICS: a molecular approach by T.A. Brown)

UUU	phe	UCU	ser	UAU	cys
UUC		UCC		UAC	
UUA		UCA		UAA	
UUG		UCG		UAG	
leu				$stop$	$UGA \}$ stop $UGG \}$ trip
CUU	leu	CCU	pro	CAU	arg
CUC		CCC		CAC	
CUA		CCA		CAA	
CUG		CCG		CAG	
				gln	
AUU	ile	ACU	thr	AAU	arg
AUC		ACC		AAC	
AUA		ACA		AAA	
AUG		ACG		AAG	
				lys	
GUU	met	GCU	ala	GAU	gly
GUC		GCC		GAC	
$GU A$		GCA		GAA	
GUG		GCG		GAG	
				glu	
val					

Table 2: The genetic code (from Tablet 8.2 in GENETICS: a molecular approach by T.A. Brown)