

Table 1. Evolution of the Genetic Code

The GNC primitive genetic code
[4 codons]

	U	C	A	G	
G	Alanine	Alanine	Aspartic acid	Serine or Glycine	C

	U	C	A	G	
G	Valine	Alanine	Aspartic acid	Serine or Glycine	C

The SNS primitive genetic code [16 codons]

	U	C	A	G	
G	Valine	Alanine	Aspartic acid	Serine	C
			Glumatic acid	Glumatic acid	G
C	Valine	Glumatic acid	Glumatic acid	Glumatic acid	C
					G

(Di Giulio 2008)

	U	C	A	G	
G	Valine	Alanine	Aspartic acid	Glycine	C
			Glumatic acid		G
C	Leucine	Proline	Histidine	Arginine	C
			Glutamine		G

(Ikehara 2002)



The universal genetic code
[64 codons]

			Second letter						
			U	C	A	G			
Universal code	SNS code	GNC code	First letter	G	Valine GUU GUC GUA GUG	Alanine GCU GCC GCA GCG	Aspartic acid GAU GAC	Glycine GGU GGC GGA GGG	U
					C				
					A				
					G				
		C	Leucine CUU CUC CUA CUG	Proline CCU CCC CCA CCG	Histidine CAU CAC	Arginine CGU CGC CGA CGG	U		
					C				
			A	Isoleucine AUU AUC AUA	Threonine ACU ACC ACA ACG	Glutamine CAA CAG		A	
								G	
	U	Methionine AUG (start codon)					U		
							C		
	U	Phenylalanine UUU UUC	Serine UCU UCC UCA UCG	Asparagine AAU AAC	Serine AGU AGC	U			
				C					
		Leucine UUA UUG		(stop codon) UAA UAG		Arginine AGA AGG	A		
							G		
						U			
						C			
					A				
					G				