

# Standard Ambiguity Codes

*Meraj Hashemi*

## SNPs

Nucleotide ambiguity code as defined in DNA Sequence Assembler.

Symbol	Description	Bases represented	Complement
A	Adenine	A - - -	V
C	Cytosine	- C - -	H
G	Guanine	- - G -	D
T	Thymine	- - - T	B
W	Weak	A - - T	S
S	Strong	- C G -	W
M	aMino	A C - -	K
K	Keto	- - G T	M
R	puRine	A - G -	Y
Y	pYrimidine	- C - T	R
B	not A	- C G T	A
D	not C	A - G T	C
H	not G	A C - T	G
V	not T	A C G -	T
N	any Nucleotide	A C G T	Z
Z	Zero	- - - -	N

## Amino Acids and Codons

The standard ambiguity codes for nucleotides and for the one-letter and three-letter designations of amino acids. Notice that all the entries in the same row encodes to the corresponding amino acid.

Amino Acid (full)	3-Let	1-Let	Codons (triplets)	Compressed (compact)
Alanine	Ala	A	GCT, GCC, GCA, GCG	GCN
Cysteine	Cys	C	TGT, TGC	TGY
Aspartic	Asp	D	GAT, GAC	GAY
Glutamic	Glu	E	GAA, GAG	GAR
Phenylalanine	Phe	F	TTT, TTC	TTY
Glycine	Gly	G	GGT, GGC, GGA, GGG	GGN
Histidine	His	H	CAT, CAC	CAY
Isoleucine	Ile	I	ATT, ATC, ATA	ATH
Lysine	Lys	K	AAA, AAG	AAR
Leucine	Leu	L	TTA, TTG, CTT, CTC, CTA, CTG	YTR,CTN
Methionine	Met	M	ATG	
Asparagine	Asn	N	AAT, AAC	AAY
Proline	Pro	P	CCT, CCC, CCA, CCG	CCN
Glutamine	Gln	Q	CAA, CAG	CAR
Arginine	Arg	R	CGT, CGC, CGA, CGG, AGA, AGG	CGN, MGR
Serine	Ser	S	TCT, TCC, TCA, TCG, AGT, AGC	TCN, AGY
Threonine	Thr	T	ACT, ACC, ACA, ACG	ACN
Valine	Val	V	GTT, GTC, GTA, GTG	GTN

Amino Acid (full)	3-Let	1-Let	Codons (triplets)	Compressed (compact)
Tryptophan	Trp	W	TGG	
Tyrosine	Tyr	Y	TAT, TAC	TAY