

Genetic Code Symmetries — Activation Key 2

(Stop codon parameters: M_side = 222, P = 116, N = 106; Start codon adjustment: +74 to M_side)

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
C	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
A	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
G	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
A	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
G	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
G	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 64 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	8584	/ 37 = 232
Sum of Side-Chain Masses:	4144	/ 37 = 112
Sum of Protons:	4608	
Sum of Neutrons:	3976	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):

4292 / 37 = 116

Sum of Side-Chain Masses:

2072 / 37 = 56

Sum of Protons:

2304

Sum of Neutrons:

1988

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):

4292 / 37 = 116

Sum of Side-Chain Masses:

2072 / 37 = 56

Sum of Protons:

2304

Sum of Neutrons:

1988

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):

4292 / 37 = 116

Sum of Side-Chain Masses:

2072 / 37 = 56

Sum of Protons:

2304

Sum of Neutrons:

1988

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):

4292 / 37 = 116

Sum of Side-Chain Masses:

2072 / 37 = 56

Sum of Protons:

2304

Sum of Neutrons:

1988

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):

3700 / 37 = 100

Sum of Side-Chain Masses:

1332 / 37 = 36

Sum of Protons:

2000

Sum of Neutrons:

1700

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
A	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
A	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
A	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
G	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
G	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
G	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
G	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
G	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
G	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
G	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 32 Codon(s)

Reset

Sum of Full AA Masses (Nucleons): **4884** / 37 = 132

Sum of Side-Chain Masses: **2812** / 37 = 76

Sum of Protons: **2608**

Sum of Neutrons: **2276**

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons): 1850 / 37 = 50

Sum of Side-Chain Masses: 666 / 37 = 18

Sum of Protons: 1000

Sum of Neutrons: 850

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	1850	/ 37 = 50
Sum of Side-Chain Masses:	666	/ 37 = 18
Sum of Protons:		1000
Sum of Neutrons:		850

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):

1850 / 37 = 50

Sum of Side-Chain Masses:

666 / 37 = 18

Sum of Protons:

1000

Sum of Neutrons:

850

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	1850	/ 37 = 50
Sum of Side-Chain Masses:	666	/ 37 = 18
Sum of Protons:	1000	
Sum of Neutrons:	850	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	925	/ 37 = 25
Sum of Side-Chain Masses:	333	/ 37 = 9
Sum of Protons:		500
Sum of Neutrons:		425

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):	925	/ 37 = 25
Sum of Side-Chain Masses:	333	/ 37 = 9
Sum of Protons:	500	
Sum of Neutrons:	425	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):	925	/ 37 = 25
Sum of Side-Chain Masses:	333	/ 37 = 9
Sum of Protons:	500	
Sum of Neutrons:	425	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
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	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):	925	/ 37 = 25
Sum of Side-Chain Masses:	333	/ 37 = 9
Sum of Protons:		500
Sum of Neutrons:		425

	T	C	A	G
T	TTT Phe 91	TCT Ser 31	TAT Tyr 107	TGT Cys 47
	TTC Phe 91	TCC Ser 31	TAC Tyr 107	TGC Cys 47
	TTA Leu 57	TCA Ser 31	TAA STOP 222	TGA STOP 222
	TTG Leu 57	TCG Ser 31	TAG STOP 222	TGG Trp 130
C	CTT Leu 57	CCT Pro 41	CAT His 81	CGT Arg 100
	CTC Leu 57	CCC Pro 41	CAC His 81	CGC Arg 100
	CTA Leu 57	CCA Pro 41	CAA Gln 72	CGA Arg 100
	CTG Leu 57	CCG Pro 41	CAG Gln 72	CGG Arg 100
A	ATT Ile 57	ACT Thr 45	AAT Asn 58	AGT Ser 31
	ATC Ile 57	ACC Thr 45	AAC Asn 58	AGC Ser 31
	ATA Ile 57	ACA Thr 45	AAA Lys 72	AGA Arg 100
	ATG Met 149	ACG Thr 45	AAG Lys 72	AGG Arg 100
G	GTT Val 43	GCT Ala 15	GAT Asp 59	GGT Gly 1
	GTC Val 43	GCC Ala 15	GAC Asp 59	GGC Gly 1
	GTA Val 43	GCA Ala 15	GAA Glu 73	GGA Gly 1
	GTG Val 43	GCG Ala 15	GAG Glu 73	GGG Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	2442	/ 37 = 66
Sum of Side-Chain Masses:	1406	/ 37 = 38
Sum of Protons:	1304	
Sum of Neutrons:	1138	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
C	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
A	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
A	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
C	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
A	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
A	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
A	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
A	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
A	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
G	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
G	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
G	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):

2442 / 37 = 66

Sum of Side-Chain Masses:

1406 / 37 = 38

Sum of Protons:

1304

Sum of Neutrons:

1138

	T	C	A	G
T	TTT Phe 91	TCT Ser 31	TAT Tyr 107	TGT Cys 47
	TTC Phe 91	TCC Ser 31	TAC Tyr 107	TGC Cys 47
	TTA Leu 57	TCA Ser 31	TAA STOP 222	TGA STOP 222
	TTG Leu 57	TCG Ser 31	TAG STOP 222	TGG Trp 130
C	CTT Leu 57	CCT Pro 41	CAT His 81	CGT Arg 100
	CTC Leu 57	CCC Pro 41	CAC His 81	CGC Arg 100
	CTA Leu 57	CCA Pro 41	CAA Gln 72	CGA Arg 100
	CTG Leu 57	CCG Pro 41	CAG Gln 72	CGG Arg 100
A	ATT Ile 57	ACT Thr 45	AAT Asn 58	AGT Ser 31
	ATC Ile 57	ACC Thr 45	AAC Asn 58	AGC Ser 31
	ATA Ile 57	ACA Thr 45	AAA Lys 72	AGA Arg 100
	ATG Met 149	ACG Thr 45	AAG Lys 72	AGG Arg 100
G	GTT Val 43	GCT Ala 15	GAT Asp 59	GGT Gly 1
	GTC Val 43	GCC Ala 15	GAC Asp 59	GGC Gly 1
	GTA Val 43	GCA Ala 15	GAA Glu 73	GGA Gly 1
	GTG Val 43	GCG Ala 15	GAG Glu 73	GGG Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	2442	/ 37 = 66
Sum of Side-Chain Masses:	1406	/ 37 = 38
Sum of Protons:	1304	
Sum of Neutrons:	1138	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons): 2442 / 37 = 66

Sum of Side-Chain Masses: 1406 / 37 = 38

Sum of Protons: 1304

Sum of Neutrons: 1138

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
C	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	1123
Sum of Side-Chain Masses:	531
Sum of Protons:	598
Sum of Neutrons:	525

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons): **1319**

Sum of Side-Chain Masses: **875**

Sum of Protons: **706**

Sum of Neutrons: **613**

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	1123
Sum of Side-Chain Masses:	531
Sum of Protons:	598
Sum of Neutrons:	525

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 8 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):	1319
Sum of Side-Chain Masses:	875
Sum of Protons:	706
Sum of Neutrons:	613

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons): **1850** / 37 = 50

Sum of Side-Chain Masses: **666** / 37 = 18

Sum of Protons: **1000**

Sum of Neutrons: **850**

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	1850	/ 37 = 50
Sum of Side-Chain Masses:	666	/ 37 = 18
Sum of Protons:	1000	
Sum of Neutrons:	850	

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

[Reset](#)

Sum of Full AA Masses (Nucleons):	2638
Sum of Side-Chain Masses:	1750
Sum of Protons:	1412
Sum of Neutrons:	1226

	T		C		A		G	
T	TTT	Phe 91	TCT	Ser 31	TAT	Tyr 107	TGT	Cys 47
C	TTC	Phe 91	TCC	Ser 31	TAC	Tyr 107	TGC	Cys 47
	TTA	Leu 57	TCA	Ser 31	TAA	STOP 222	TGA	STOP 222
	TTG	Leu 57	TCG	Ser 31	TAG	STOP 222	TGG	Trp 130
C	CTT	Leu 57	CCT	Pro 41	CAT	His 81	CGT	Arg 100
	CTC	Leu 57	CCC	Pro 41	CAC	His 81	CGC	Arg 100
	CTA	Leu 57	CCA	Pro 41	CAA	Gln 72	CGA	Arg 100
	CTG	Leu 57	CCG	Pro 41	CAG	Gln 72	CGG	Arg 100
A	ATT	Ile 57	ACT	Thr 45	AAT	Asn 58	AGT	Ser 31
	ATC	Ile 57	ACC	Thr 45	AAC	Asn 58	AGC	Ser 31
	ATA	Ile 57	ACA	Thr 45	AAA	Lys 72	AGA	Arg 100
	ATG	Met 149	ACG	Thr 45	AAG	Lys 72	AGG	Arg 100
G	GTT	Val 43	GCT	Ala 15	GAT	Asp 59	GGT	Gly 1
	GTC	Val 43	GCC	Ala 15	GAC	Asp 59	GGC	Gly 1
	GTA	Val 43	GCA	Ala 15	GAA	Glu 73	GGA	Gly 1
	GTG	Val 43	GCG	Ala 15	GAG	Glu 73	GGG	Gly 1

Calculation for 16 Codon(s)

Reset

Sum of Full AA Masses (Nucleons):	2246
Sum of Side-Chain Masses:	1062
Sum of Protons:	1196
Sum of Neutrons:	1050