

Lab 8: Strings, Functions and Bioinformatics...

TABLES

Nucleotides:

Nucleotide base	Letter
Adenine	A
Cytosine	C
Guanine	G
Thymine	T

Nucleotide base pairs

$\text{compl}(A) = T$
$\text{compl}(T) = A$
$\text{compl}(C) = G$
$\text{compl}(G) = C$

Amino Acid	Three-letter code	One-letter code
Alanine	<i>Ala</i>	A
Arginine	<i>Arg</i>	R
Asparagine	<i>Asn</i>	N
Aspartic acid	<i>Asp</i>	D
Cysteine	<i>Cys</i>	C
Glutamic acid	<i>Glu</i>	E
Glutamine	<i>Gln</i>	Q
Glycine	<i>Gly</i>	G
Histidine	<i>His</i>	H
Isoleucine	<i>Ile</i>	I
Leucine	<i>Leu</i>	L
Lysine	<i>Lys</i>	K
Methionine	<i>Met</i>	M
Phenylalanine	<i>Phe</i>	F
Proline	<i>Pro</i>	P
Serine	<i>Ser</i>	S
Threonine	<i>Thr</i>	T
Tryptophan	<i>Trp</i>	W
Tyrosine	<i>Tyr</i>	Y
Valine	<i>Val</i>	V

Table 1: Amino Acids.

First Nucleotide	Second Nucleotide															
	T			C			A			G						
T	TTT	→	<i>Phe</i>	F	TCT	→	<i>Ser</i>	S	TAT	→	<i>Tyr</i>	Y	TGT	→	<i>Cys</i>	C
	TTC	→	<i>Phe</i>	F	TCC	→	<i>Ser</i>	S	TAC	→	<i>Tyr</i>	Y	TGC	→	<i>Cys</i>	C
	TTA	→	<i>Leu</i>	L	TCA	→	<i>Ser</i>	S	TAA	→	Stop		TGA	→	Stop	
	TTG	→	<i>Leu</i>	L	TCG	→	<i>Ser</i>	S	TAG	→	Stop		TGG	→	<i>Trp</i>	W
C	CTT	→	<i>Leu</i>	L	CCT	→	<i>Pro</i>	P	CAT	→	<i>His</i>	H	CGT	→	<i>Arg</i>	R
	CTC	→	<i>Leu</i>	L	CCC	→	<i>Pro</i>	P	CAC	→	<i>His</i>	H	CGC	→	<i>Arg</i>	R
	CTA	→	<i>Leu</i>	L	CCA	→	<i>Pro</i>	P	CAA	→	<i>Gln</i>	Q	CGA	→	<i>Arg</i>	R
	CTG	→	<i>Leu</i>	L	CCG	→	<i>Pro</i>	P	CAG	→	<i>Gln</i>	Q	CGG	→	<i>Arg</i>	R
A	ATT	→	<i>Ile</i>	I	ACT	→	<i>Thr</i>	T	AAT	→	<i>Asn</i>	N	AGT	→	<i>Ser</i>	S
	ATC	→	<i>Ile</i>	I	ACC	→	<i>Thr</i>	T	AAC	→	<i>Asn</i>	N	ACC	→	<i>Ser</i>	S
	ATA	→	<i>Ile</i>	I	ACA	→	<i>Thr</i>	T	AAA	→	<i>Lys</i>	K	AGA	→	<i>Arg</i>	G
	ATG	→	<i>Met/Start</i>	M	ACG	→	<i>Thr</i>	T	AAG	→	<i>Lys</i>	K	AGG	→	<i>Arg</i>	G
G	GTT	→	<i>Val</i>	V	GCT	→	<i>Ala</i>	A	GAT	→	<i>Asp</i>	D	GGT	→	<i>Gly</i>	G
	GTC	→	<i>Val</i>	V	GCC	→	<i>Ala</i>	A	GAC	→	<i>Asp</i>	D	GGC	→	<i>Gly</i>	G
	GTA	→	<i>Val</i>	V	GCA	→	<i>Ala</i>	A	GAA	→	<i>Glu</i>	E	GGA	→	<i>Gly</i>	G
	GTG	→	<i>Val</i>	V	GCG	→	<i>Ala</i>	A	GAG	→	<i>Glu</i>	E	GGG	→	<i>Gly</i>	G

Table 2: Genetic Code.