

Human Insulin Sample Protein Data (49)

Summary Report

Individual Codon Fitness (Max) -0.17832
 Codon Context Fitness (Max) -0.11606

Input Sequence As Protein

MALWMRLLPLLLALLALWGPDPAAAFVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQV
 ELGGGPGAGSLQPLALEGSLQKRGIVEQCCTSIICSLYQLENYCN*

Optimized Nucleotide Sequence

ATGGCTTTATGGATGAGATTATTACCATTATTGGCACTATTGGCTTTGTGGGGTCCTGATCCAGCT
 GCTGCATTTGTTAATCAACATTTATGCGGTAGTCACTTAGTAGAAGCATTATACTTGGTTTGTGGT
 GAAAGAGGATTTTTCTATACTCCAAAAACAAGAAGAGAAGCTGAAGATTTACAAGTTGGTCAAGTG
 GAATTGGGTGGTGGACCTGGTGCTGGTTCATTGCAACCATTGGCCTTAGAAGGTTCCCTACAAAAA
 AGAGGTATTGTTGAACAATGTTGTACTTCTATTTGTTCTTTATATCAATTGGAAAATTATTGTAAC
 TAA

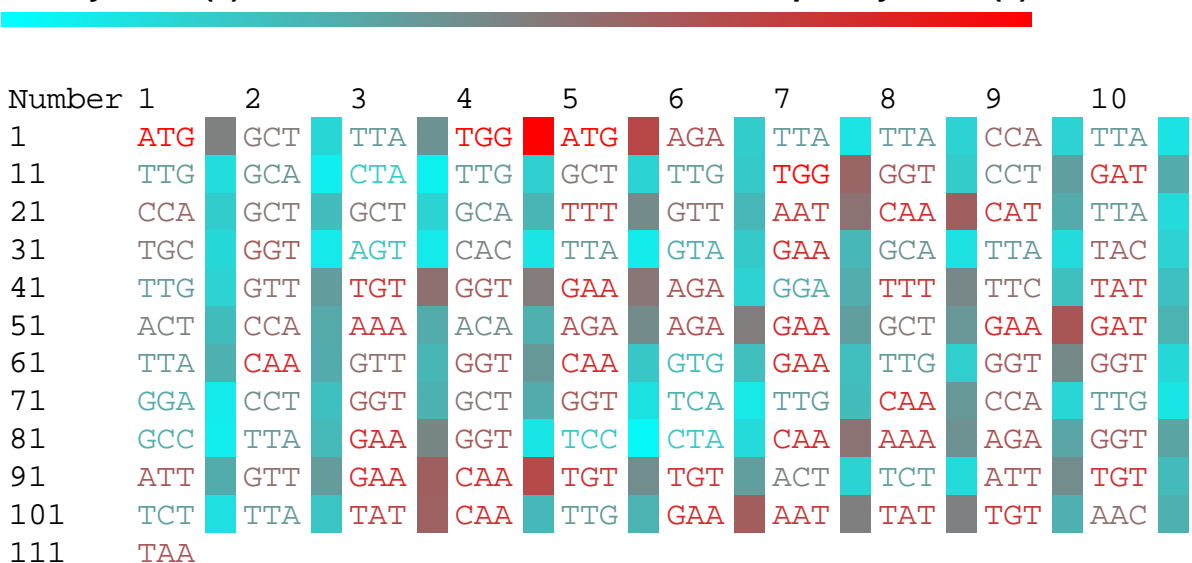
Output Sequence Relative Frequency Distribution

Note: Colour of codons indicates the frequency for that codon, with respect to the host.

Block colour between codons indicates the frequency of the adjacent codon pairs (i.e. the codons to the left and right), with respect to the host.

Rarely Used (0)

Frequently Used (1)



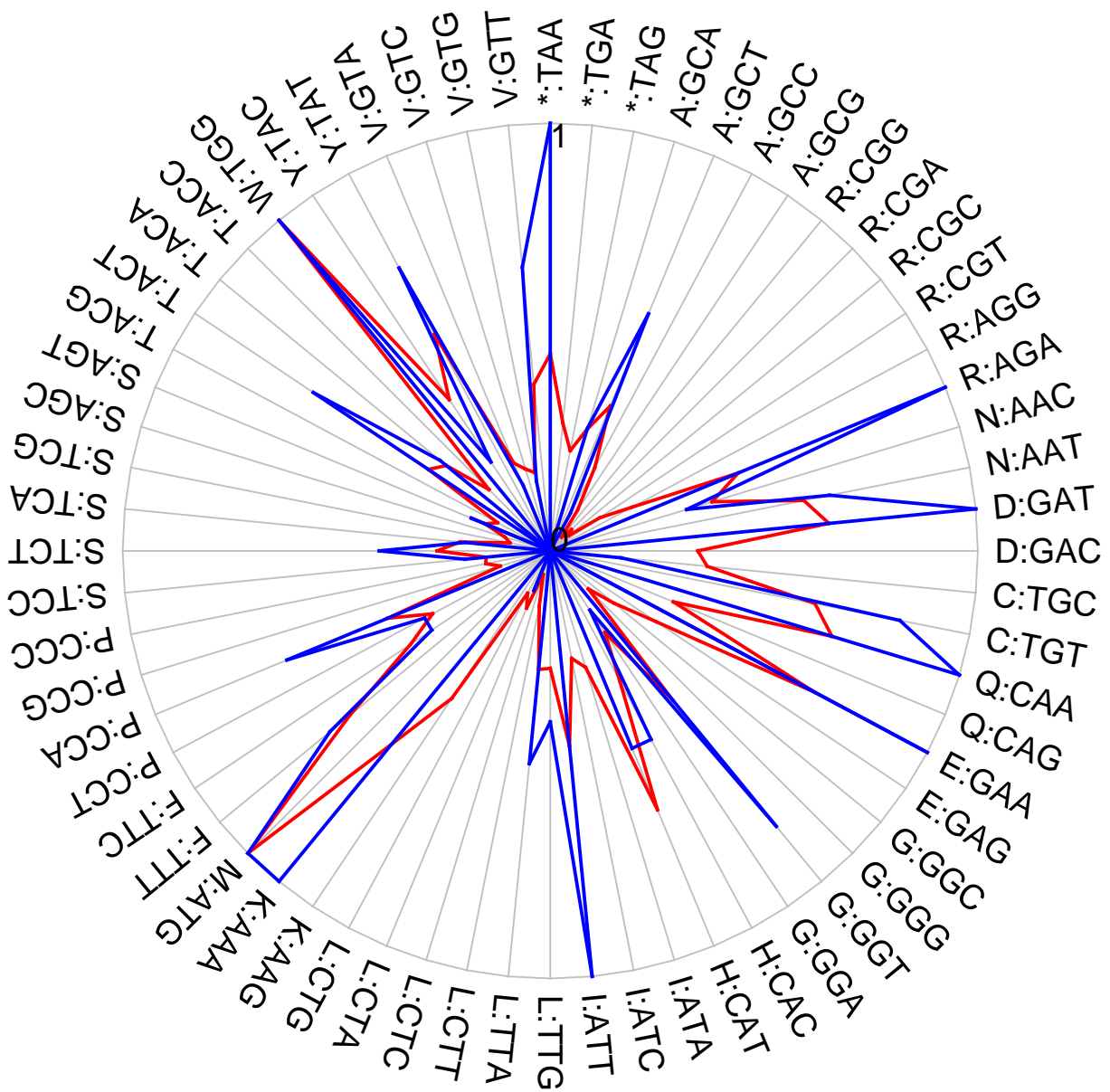
Consecutive Repeat Fitness as Constraint (Total Consecutive Repeat Bases: 0)

- Remove Consecutive Repeats with motif length of 3 repeated 3 or more times

Output Sequence with Consecutive Repeat Highlight

```
1      a t g g c t t t a t g g a t g a g a t t a t t a c c a t t a
31     t t g g c a c t a t t g g c t t t g t g g g g t c c t g a t
61     c c a g c t g c t g c a t t t g t t a a t c a a c a t t t a
91     t g c g g t a g t c a c t t a g t a g a a g c a t t a t a c
121    t t g g t t t g t g g t g a a a g a g g a t t t t c t a t
151    a c t c c a a a a a c a a g a a g a g a a g c t g a a g a t
181    t t a c a a g t t g g t c a a g t g g a a t t g g g t g g t
211    g g a c c t g g t g c t g g t t c a t t g c a a c c a t t g
241    g c c t t a g a a g g t t c c c t a c a a a a a g a g g t
271    a t t g t t g a a c a a t g t t g t a c t t c t a t t t g t
301    t c t t t a t a t c a a t t g g a a a a t t a t t g t a a c
331    t a a
```

Host vs Optimized Individual Codon Usage



Host
Optimized

Expression Host: *Saccharomyces cerevisiae*

Individual Codon Frequency and Colour Table

| Amino Acid | Codon | Host Relative Frequency | Optimized Usage Count | Optimized Synonymous Total | Optimized Relative Frequency |
|------------|-------|-------------------------|-----------------------|----------------------------|------------------------------|
| * | TGA | 0.3003 | 0 | 1 | 0 |
| * | TAA | 0.4608 | 1 | 1 | 1 |
| * | TAG | 0.2389 | 0 | 1 | 0 |
| A | GCA | 0.2976 | 3 | 10 | 0.3 |
| A | GCC | 0.221 | 1 | 10 | 0.1 |
| A | GCT | 0.3665 | 6 | 10 | 0.6 |
| A | GCG | 0.1149 | 0 | 10 | 0 |
| C | TGC | 0.3689 | 1 | 6 | 0.1667 |
| C | TGT | 0.6311 | 5 | 6 | 0.8333 |
| D | GAC | 0.345 | 0 | 2 | 0 |
| D | GAT | 0.655 | 2 | 2 | 1 |
| E | GAA | 0.7013 | 8 | 8 | 1 |
| E | GAG | 0.2987 | 0 | 8 | 0 |
| F | TTT | 0.6076 | 2 | 3 | 0.6667 |
| F | TTC | 0.3924 | 1 | 3 | 0.3333 |
| G | GGA | 0.2297 | 2 | 12 | 0.1667 |
| G | GGG | 0.1259 | 0 | 12 | 0 |
| G | GGC | 0.1928 | 0 | 12 | 0 |
| G | GGT | 0.4516 | 10 | 12 | 0.8333 |
| H | CAT | 0.6554 | 1 | 2 | 0.5 |
| H | CAC | 0.3446 | 1 | 2 | 0.5 |
| I | ATA | 0.2848 | 0 | 2 | 0 |
| I | ATC | 0.2563 | 0 | 2 | 0 |
| I | ATT | 0.4589 | 2 | 2 | 1 |
| K | AAA | 0.5848 | 2 | 2 | 1 |
| K | AAG | 0.4152 | 0 | 2 | 0 |
| L | TTA | 0.2787 | 10 | 20 | 0.5 |
| L | CTG | 0.1124 | 0 | 20 | 0 |
| L | TTG | 0.2747 | 8 | 20 | 0.4 |
| L | CTT | 0.1315 | 0 | 20 | 0 |
| L | CTC | 0.05795 | 0 | 20 | 0 |
| L | CTA | 0.1447 | 2 | 20 | 0.1 |
| M | ATG | 1 | 2 | 2 | 1 |
| N | AAC | 0.3955 | 1 | 3 | 0.3333 |
| N | AAT | 0.6045 | 2 | 3 | 0.6667 |
| P | CCA | 0.412 | 4 | 6 | 0.6667 |
| P | CCC | 0.1536 | 0 | 6 | 0 |
| P | CCT | 0.3121 | 2 | 6 | 0.3333 |
| P | CCG | 0.1222 | 0 | 6 | 0 |
| Q | CAA | 0.6884 | 7 | 7 | 1 |
| Q | CAG | 0.3116 | 0 | 7 | 0 |
| R | CGT | 0.1396 | 0 | 5 | 0 |
| R | AGG | 0.2166 | 0 | 5 | 0 |
| R | CGC | 0.05648 | 0 | 5 | 0 |

| | | | | | |
|---|-----|---------|---|---|--------|
| R | CGG | 0.0414 | 0 | 5 | 0 |
| R | CGA | 0.07025 | 0 | 5 | 0 |
| R | AGA | 0.4757 | 5 | 5 | 1 |
| S | TCG | 0.09597 | 0 | 5 | 0 |
| S | TCC | 0.151 | 1 | 5 | 0.2 |
| S | TCT | 0.2648 | 2 | 5 | 0.4 |
| S | TCA | 0.2122 | 1 | 5 | 0.2 |
| S | AGT | 0.1653 | 1 | 5 | 0.2 |
| S | AGC | 0.1107 | 0 | 5 | 0 |
| T | ACT | 0.3427 | 2 | 3 | 0.6667 |
| T | ACA | 0.3147 | 1 | 3 | 0.3333 |
| T | ACC | 0.2027 | 0 | 3 | 0 |
| T | ACG | 0.1399 | 0 | 3 | 0 |
| V | GTG | 0.1867 | 1 | 6 | 0.1667 |
| V | GTT | 0.3914 | 4 | 6 | 0.6667 |
| V | GTA | 0.2219 | 1 | 6 | 0.1667 |
| V | GTC | 0.2 | 0 | 6 | 0 |
| W | TGG | 1 | 2 | 2 | 1 |
| Y | TAC | 0.4254 | 1 | 4 | 0.25 |
| Y | TAT | 0.5746 | 3 | 4 | 0.75 |

Codon Context Frequency and Colour Table

| Amino Acid | Codon Pair | Host Relative Frequency | Optimized Usage Count | Optimized Synonymous Total | Optimized Relative Frequency |
|------------|------------|-------------------------|-----------------------|----------------------------|------------------------------|
| A* | GCATAA | 0.1111 | 0 | 0 | 0 |
| A* | GCTTGA | 0.07407 | 0 | 0 | 0 |
| A* | GCATAG | 0.03704 | 0 | 0 | 0 |
| A* | GCGTAA | 0.1111 | 0 | 0 | 0 |
| A* | GCGTAG | 0.07407 | 0 | 0 | 0 |
| A* | GCCTGA | 0.1111 | 0 | 0 | 0 |
| A* | GCTTAG | 0.07407 | 0 | 0 | 0 |
| A* | GCATGA | 0.1481 | 0 | 0 | 0 |
| A* | GCCTAG | 0.07407 | 0 | 0 | 0 |
| A* | GCCTAA | 0.03704 | 0 | 0 | 0 |
| A* | GCTTAA | 0.1111 | 0 | 0 | 0 |
| A* | GCGTGA | 0.03704 | 0 | 0 | 0 |
| AA | GCAGCA | 0.08247 | 0 | 2 | 0 |
| AA | GCAGCC | 0.05928 | 0 | 2 | 0 |
| AA | GCGGCT | 0.04038 | 0 | 2 | 0 |
| AA | GCGGCA | 0.05326 | 0 | 2 | 0 |
| AA | GCGGCC | 0.02062 | 0 | 2 | 0 |
| AA | GCGGCG | 0.01031 | 0 | 2 | 0 |
| AA | GCAGCT | 0.0799 | 0 | 2 | 0 |
| AA | GCAGCG | 0.02663 | 0 | 2 | 0 |
| AA | GCCGCT | 0.0799 | 0 | 2 | 0 |
| AA | GCCGCG | 0.01031 | 0 | 2 | 0 |
| AA | GCTGCA | 0.1211 | 1 | 2 | 0.5 |
| AA | GCTGCC | 0.09966 | 0 | 2 | 0 |
| AA | GCTGCT | 0.1838 | 1 | 2 | 0.5 |

| | | | | | |
|----|--------|----------|---|---|---|
| AA | GCTGCG | 0.04124 | 0 | 2 | 0 |
| AA | GCCGCA | 0.04467 | 0 | 2 | 0 |
| AA | GCCGCC | 0.04639 | 0 | 2 | 0 |
| AC | GCGTGT | 0.05641 | 0 | 0 | 0 |
| AC | GCGTGC | 0.0359 | 0 | 0 | 0 |
| AC | GCCTGT | 0.1692 | 0 | 0 | 0 |
| AC | GCATGC | 0.1897 | 0 | 0 | 0 |
| AC | GCTTGT | 0.2051 | 0 | 0 | 0 |
| AC | GCTTGC | 0.04615 | 0 | 0 | 0 |
| AC | GCATGT | 0.2103 | 0 | 0 | 0 |
| AC | GCCTGC | 0.08718 | 0 | 0 | 0 |
| AD | GCTGAT | 0.2724 | 0 | 0 | 0 |
| AD | GCAGAT | 0.2171 | 0 | 0 | 0 |
| AD | GCGGAC | 0.04474 | 0 | 0 | 0 |
| AD | GCTGAC | 0.1145 | 0 | 0 | 0 |
| AD | GCCGAC | 0.04868 | 0 | 0 | 0 |
| AD | GCCGAT | 0.1184 | 0 | 0 | 0 |
| AD | GCGGAT | 0.06842 | 0 | 0 | 0 |
| AD | GCAGAC | 0.1158 | 0 | 0 | 0 |
| AE | GCGGAG | 0.02815 | 0 | 1 | 0 |
| AE | GCGGAA | 0.06982 | 0 | 1 | 0 |
| AE | GCTGAG | 0.09234 | 0 | 1 | 0 |
| AE | GCCGAA | 0.1182 | 0 | 1 | 0 |
| AE | GCAGAA | 0.2579 | 0 | 1 | 0 |
| AE | GCCGAG | 0.04167 | 0 | 1 | 0 |
| AE | GCTGAA | 0.2894 | 1 | 1 | 1 |
| AE | GCAGAG | 0.1025 | 0 | 1 | 0 |
| AF | GCTTTT | 0.1852 | 0 | 1 | 0 |
| AF | GCTTTC | 0.1536 | 0 | 1 | 0 |
| AF | GCGTTC | 0.0512 | 0 | 1 | 0 |
| AF | GCATTT | 0.2018 | 1 | 1 | 1 |
| AF | GCATTC | 0.1099 | 0 | 1 | 0 |
| AF | GCCTTC | 0.07982 | 0 | 1 | 0 |
| AF | GCCTTT | 0.1265 | 0 | 1 | 0 |
| AF | GCGTTT | 0.09187 | 0 | 1 | 0 |
| AG | GCTGGT | 0.2292 | 1 | 1 | 1 |
| AG | GCGGGC | 0.02602 | 0 | 1 | 0 |
| AG | GCGGGG | 0.01735 | 0 | 1 | 0 |
| AG | GCTGGG | 0.0347 | 0 | 1 | 0 |
| AG | GCCGGG | 0.007435 | 0 | 1 | 0 |
| AG | GCTGGA | 0.06196 | 0 | 1 | 0 |
| AG | GCCGGT | 0.1301 | 0 | 1 | 0 |
| AG | GCGGGA | 0.0347 | 0 | 1 | 0 |
| AG | GCCGGC | 0.03965 | 0 | 1 | 0 |
| AG | GCCGGA | 0.03965 | 0 | 1 | 0 |
| AG | GCGGGT | 0.04461 | 0 | 1 | 0 |
| AG | GCAGGG | 0.02478 | 0 | 1 | 0 |
| AG | GCAGGA | 0.06568 | 0 | 1 | 0 |
| AG | GCAGGT | 0.109 | 0 | 1 | 0 |
| AG | GCAGGC | 0.05948 | 0 | 1 | 0 |
| AG | GCTGGC | 0.07559 | 0 | 1 | 0 |

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|----|--------|---------|---|---|-----|
| AH | GCTCAT | 0.2434 | 0 | 0 | 0 |
| AH | GCACAC | 0.09384 | 0 | 0 | 0 |
| AH | GCCCAC | 0.02639 | 0 | 0 | 0 |
| AH | GCCCAT | 0.132 | 0 | 0 | 0 |
| AH | GCTCAC | 0.1554 | 0 | 0 | 0 |
| AH | GCACAT | 0.2229 | 0 | 0 | 0 |
| AH | GCGCAT | 0.08211 | 0 | 0 | 0 |
| AH | GCGCAC | 0.04399 | 0 | 0 | 0 |
| AI | GCGATA | 0.02072 | 0 | 0 | 0 |
| AI | GCAATT | 0.1036 | 0 | 0 | 0 |
| AI | GCCATT | 0.1488 | 0 | 0 | 0 |
| AI | GCCATC | 0.0838 | 0 | 0 | 0 |
| AI | GCTATT | 0.1977 | 0 | 0 | 0 |
| AI | GCAATC | 0.06874 | 0 | 0 | 0 |
| AI | GCTATC | 0.08475 | 0 | 0 | 0 |
| AI | GCGATC | 0.01789 | 0 | 0 | 0 |
| AI | GCAATA | 0.07345 | 0 | 0 | 0 |
| AI | GCTATA | 0.08569 | 0 | 0 | 0 |
| AI | GCGATT | 0.04143 | 0 | 0 | 0 |
| AI | GCCATA | 0.07345 | 0 | 0 | 0 |
| AK | GCCAAA | 0.1631 | 0 | 0 | 0 |
| AK | GCCAAG | 0.1515 | 0 | 0 | 0 |
| AK | GCAAAG | 0.1248 | 0 | 0 | 0 |
| AK | GCAAAA | 0.18 | 0 | 0 | 0 |
| AK | GCGAAG | 0.0508 | 0 | 0 | 0 |
| AK | GCTAAG | 0.1078 | 0 | 0 | 0 |
| AK | GCTAAA | 0.1515 | 0 | 0 | 0 |
| AK | GCGAAA | 0.07041 | 0 | 0 | 0 |
| AL | GCTTTA | 0.1135 | 1 | 5 | 0.2 |
| AL | GCGCTT | 0.0198 | 0 | 5 | 0 |
| AL | GCGCTA | 0.02376 | 0 | 5 | 0 |
| AL | GCCTTA | 0.0495 | 1 | 5 | 0.2 |
| AL | GCCTTG | 0.05611 | 0 | 5 | 0 |
| AL | GCGCTC | 0.01452 | 0 | 5 | 0 |
| AL | GCGCTG | 0.02508 | 0 | 5 | 0 |
| AL | GCGTTG | 0.03432 | 0 | 5 | 0 |
| AL | GCGTTA | 0.0429 | 0 | 5 | 0 |
| AL | GCACTT | 0.03366 | 0 | 5 | 0 |
| AL | GCTTTG | 0.1221 | 1 | 5 | 0.2 |
| AL | GCACTG | 0.02178 | 0 | 5 | 0 |
| AL | GCTCTC | 0.01452 | 0 | 5 | 0 |
| AL | GCTCTG | 0.02508 | 0 | 5 | 0 |
| AL | GCTCTT | 0.05215 | 0 | 5 | 0 |
| AL | GCTCTA | 0.04488 | 0 | 5 | 0 |
| AL | GCCCTC | 0.01188 | 0 | 5 | 0 |
| AL | GCATTA | 0.08185 | 1 | 5 | 0.2 |
| AL | GCCCTA | 0.03696 | 0 | 5 | 0 |
| AL | GCCCTT | 0.02508 | 0 | 5 | 0 |
| AL | GCCCTG | 0.02046 | 0 | 5 | 0 |
| AL | GCACTC | 0.01518 | 0 | 5 | 0 |
| AL | GCACTA | 0.0429 | 1 | 5 | 0.2 |

| | | | | | |
|----|--------|----------|---|---|---|
| AL | GCATTG | 0.07195 | 0 | 5 | 0 |
| AM | GCAATG | 0.3199 | 0 | 0 | 0 |
| AM | GCGATG | 0.1268 | 0 | 0 | 0 |
| AM | GCCATG | 0.2334 | 0 | 0 | 0 |
| AM | GCTATG | 0.3199 | 0 | 0 | 0 |
| AN | GCGAAC | 0.03596 | 0 | 0 | 0 |
| AN | GCGAAT | 0.05568 | 0 | 0 | 0 |
| AN | GCTAAC | 0.1334 | 0 | 0 | 0 |
| AN | GCTAAT | 0.1578 | 0 | 0 | 0 |
| AN | GCAAAT | 0.2158 | 0 | 0 | 0 |
| AN | GCCAAT | 0.1752 | 0 | 0 | 0 |
| AN | GCAAAC | 0.1381 | 0 | 0 | 0 |
| AN | GCCAAC | 0.08817 | 0 | 0 | 0 |
| AP | GCCCCA | 0.1041 | 0 | 0 | 0 |
| AP | GCGCCT | 0.05128 | 0 | 0 | 0 |
| AP | GCGCCG | 0.01207 | 0 | 0 | 0 |
| AP | GCGCCA | 0.04827 | 0 | 0 | 0 |
| AP | GCGCCC | 0.02866 | 0 | 0 | 0 |
| AP | GCCCCC | 0.02866 | 0 | 0 | 0 |
| AP | GCACCC | 0.04827 | 0 | 0 | 0 |
| AP | GCTCCT | 0.09351 | 0 | 0 | 0 |
| AP | GCCCCT | 0.04525 | 0 | 0 | 0 |
| AP | GCACCT | 0.1086 | 0 | 0 | 0 |
| AP | GCACCA | 0.1448 | 0 | 0 | 0 |
| AP | GCTCCG | 0.03318 | 0 | 0 | 0 |
| AP | GCACCG | 0.01659 | 0 | 0 | 0 |
| AP | GCCCCG | 0.01357 | 0 | 0 | 0 |
| AP | GCTCCA | 0.1538 | 0 | 0 | 0 |
| AP | GCTCCC | 0.06938 | 0 | 0 | 0 |
| AQ | GCTCAA | 0.3166 | 0 | 0 | 0 |
| AQ | GCGCAA | 0.08878 | 0 | 0 | 0 |
| AQ | GCTCAG | 0.0871 | 0 | 0 | 0 |
| AQ | GCGCAG | 0.05193 | 0 | 0 | 0 |
| AQ | GCACAA | 0.2027 | 0 | 0 | 0 |
| AQ | GCCCAG | 0.03853 | 0 | 0 | 0 |
| AQ | GCCCAA | 0.129 | 0 | 0 | 0 |
| AQ | GCACAG | 0.08543 | 0 | 0 | 0 |
| AR | GCAAGA | 0.2068 | 0 | 0 | 0 |
| AR | GCCCGT | 0.04898 | 0 | 0 | 0 |
| AR | GCACGC | 0.01905 | 0 | 0 | 0 |
| AR | GCCCGA | 0.005442 | 0 | 0 | 0 |
| AR | GCGAGG | 0.02177 | 0 | 0 | 0 |
| AR | GCGAGA | 0.02993 | 0 | 0 | 0 |
| AR | GCCCGC | 0.01224 | 0 | 0 | 0 |
| AR | GCCCGG | 0.001361 | 0 | 0 | 0 |
| AR | GCCAGA | 0.09932 | 0 | 0 | 0 |
| AR | GCCAGG | 0.04354 | 0 | 0 | 0 |
| AR | GCACGA | 0.01361 | 0 | 0 | 0 |
| AR | GCGCGG | 0.001361 | 0 | 0 | 0 |
| AR | GCTCGA | 0.02177 | 0 | 0 | 0 |
| AR | GCAAGG | 0.08435 | 0 | 0 | 0 |

| | | | | | |
|----|--------|----------|---|---|---|
| AR | GCTAGG | 0.0585 | 0 | 0 | 0 |
| AR | GCTCGC | 0.01769 | 0 | 0 | 0 |
| AR | GCTCGG | 0.02313 | 0 | 0 | 0 |
| AR | GCACGT | 0.03537 | 0 | 0 | 0 |
| AR | GCACGG | 0.008163 | 0 | 0 | 0 |
| AR | GCTCGT | 0.06803 | 0 | 0 | 0 |
| AR | GCGCGA | 0.008163 | 0 | 0 | 0 |
| AR | GCTAGA | 0.1551 | 0 | 0 | 0 |
| AR | GCGCGT | 0.009524 | 0 | 0 | 0 |
| AR | GCGCGC | 0.006803 | 0 | 0 | 0 |
| AS | GCAAGT | 0.05559 | 0 | 0 | 0 |
| AS | GCGTCA | 0.01985 | 0 | 0 | 0 |
| AS | GCCAGC | 0.02449 | 0 | 0 | 0 |
| AS | GCCTCT | 0.05758 | 0 | 0 | 0 |
| AS | GCCTCG | 0.02118 | 0 | 0 | 0 |
| AS | GCGTCC | 0.01191 | 0 | 0 | 0 |
| AS | GCCTCC | 0.03772 | 0 | 0 | 0 |
| AS | GCGTCT | 0.02581 | 0 | 0 | 0 |
| AS | GCTTCG | 0.03508 | 0 | 0 | 0 |
| AS | GCTTCC | 0.07809 | 0 | 0 | 0 |
| AS | GCTTCT | 0.1145 | 0 | 0 | 0 |
| AS | GCTTCA | 0.09332 | 0 | 0 | 0 |
| AS | GCTAGT | 0.05361 | 0 | 0 | 0 |
| AS | GCAAGC | 0.04169 | 0 | 0 | 0 |
| AS | GCGTCG | 0.01522 | 0 | 0 | 0 |
| AS | GCCTCA | 0.02515 | 0 | 0 | 0 |
| AS | GCATCA | 0.05692 | 0 | 0 | 0 |
| AS | GCGAGT | 0.01125 | 0 | 0 | 0 |
| AS | GCCAGT | 0.03375 | 0 | 0 | 0 |
| AS | GCGAGC | 0.01324 | 0 | 0 | 0 |
| AS | GCATCC | 0.04897 | 0 | 0 | 0 |
| AS | GCATCT | 0.0728 | 0 | 0 | 0 |
| AS | GCATCG | 0.02449 | 0 | 0 | 0 |
| AS | GCTAGC | 0.0278 | 0 | 0 | 0 |
| AT | GCTACC | 0.08132 | 0 | 0 | 0 |
| AT | GCTACA | 0.1099 | 0 | 0 | 0 |
| AT | GCAACA | 0.0967 | 0 | 0 | 0 |
| AT | GCCACA | 0.06593 | 0 | 0 | 0 |
| AT | GCAACG | 0.02637 | 0 | 0 | 0 |
| AT | GCAACT | 0.07143 | 0 | 0 | 0 |
| AT | GCTACG | 0.05165 | 0 | 0 | 0 |
| AT | GCGACC | 0.01099 | 0 | 0 | 0 |
| AT | GCGACA | 0.04176 | 0 | 0 | 0 |
| AT | GCAACC | 0.04286 | 0 | 0 | 0 |
| AT | GCGACG | 0.01429 | 0 | 0 | 0 |
| AT | GCCACG | 0.04396 | 0 | 0 | 0 |
| AT | GCCACT | 0.1176 | 0 | 0 | 0 |
| AT | GCTACT | 0.1242 | 0 | 0 | 0 |
| AT | GCGACT | 0.02747 | 0 | 0 | 0 |
| AT | GCCACC | 0.07363 | 0 | 0 | 0 |
| AV | GCAGTT | 0.1029 | 0 | 0 | 0 |

| | | | | | |
|----|--------|---------|---|---|---|
| AV | GCTGTC | 0.09172 | 0 | 0 | 0 |
| AV | GCTGTT | 0.1644 | 0 | 0 | 0 |
| AV | GCGGTT | 0.03691 | 0 | 0 | 0 |
| AV | GCTGTA | 0.07942 | 0 | 0 | 0 |
| AV | GCCGTA | 0.03915 | 0 | 0 | 0 |
| AV | GCCGTT | 0.08725 | 0 | 0 | 0 |
| AV | GCCGTG | 0.03915 | 0 | 0 | 0 |
| AV | GCCGTC | 0.03468 | 0 | 0 | 0 |
| AV | GCGGTG | 0.01566 | 0 | 0 | 0 |
| AV | GCTGTG | 0.08166 | 0 | 0 | 0 |
| AV | GCGGTC | 0.01342 | 0 | 0 | 0 |
| AV | GCAGTA | 0.08166 | 0 | 0 | 0 |
| AV | GCAGTG | 0.05928 | 0 | 0 | 0 |
| AV | GCAGTC | 0.04698 | 0 | 0 | 0 |
| AV | GCGGTA | 0.02573 | 0 | 0 | 0 |
| AW | GCGTGG | 0.1127 | 0 | 0 | 0 |
| AW | GCATGG | 0.2746 | 0 | 0 | 0 |
| AW | GCCTGG | 0.2324 | 0 | 0 | 0 |
| AW | GCTTGG | 0.3803 | 0 | 0 | 0 |
| AY | GCGTAT | 0.09485 | 0 | 0 | 0 |
| AY | GCCTAC | 0.1031 | 0 | 0 | 0 |
| AY | GCGTAC | 0.05361 | 0 | 0 | 0 |
| AY | GCCTAT | 0.1155 | 0 | 0 | 0 |
| AY | GCTTAC | 0.1485 | 0 | 0 | 0 |
| AY | GCTTAT | 0.1711 | 0 | 0 | 0 |
| AY | GCATAT | 0.2041 | 0 | 0 | 0 |
| AY | GCATAC | 0.1093 | 0 | 0 | 0 |
| C* | TGCTAA | 0.1111 | 0 | 0 | 0 |
| C* | TGCTAG | 0 | 0 | 0 | 0 |
| C* | TGTTGA | 0.2222 | 0 | 0 | 0 |
| C* | TGTTAG | 0.5556 | 0 | 0 | 0 |
| C* | TGCTGA | 0 | 0 | 0 | 0 |
| C* | TGTTAA | 0.1111 | 0 | 0 | 0 |
| CA | TGCGCT | 0.07429 | 0 | 0 | 0 |
| CA | TGTGCT | 0.2857 | 0 | 0 | 0 |
| CA | TGCGCG | 0.04 | 0 | 0 | 0 |
| CA | TGTGCG | 0.1029 | 0 | 0 | 0 |
| CA | TGTGCC | 0.1429 | 0 | 0 | 0 |
| CA | TGTGCA | 0.1886 | 0 | 0 | 0 |
| CA | TGCGCA | 0.08 | 0 | 0 | 0 |
| CA | TGCGCC | 0.08571 | 0 | 0 | 0 |
| CC | TGCTGC | 0.1446 | 0 | 1 | 0 |
| CC | TGTTGC | 0.2169 | 0 | 1 | 0 |
| CC | TGTTGT | 0.3133 | 1 | 1 | 1 |
| CC | TGCTGT | 0.3253 | 0 | 1 | 0 |
| CD | TGCGAC | 0.105 | 0 | 0 | 0 |
| CD | TGTGAC | 0.22 | 0 | 0 | 0 |
| CD | TGCGAT | 0.21 | 0 | 0 | 0 |
| CD | TGTGAT | 0.465 | 0 | 0 | 0 |
| CE | TGCGAG | 0.1338 | 0 | 0 | 0 |
| CE | TGTGAG | 0.2293 | 0 | 0 | 0 |

| | | | | | |
|----|--------|---------|---|---|-----|
| CE | TGTGAA | 0.465 | 0 | 0 | 0 |
| CE | TGCGAA | 0.172 | 0 | 0 | 0 |
| CF | TGTTTT | 0.3693 | 0 | 0 | 0 |
| CF | TGCTTT | 0.2614 | 0 | 0 | 0 |
| CF | TGCTTC | 0.1193 | 0 | 0 | 0 |
| CF | TGTTTC | 0.25 | 0 | 0 | 0 |
| CG | TGCGGC | 0.03731 | 0 | 2 | 0 |
| CG | TGCGGA | 0.04478 | 0 | 2 | 0 |
| CG | TGTGGC | 0.1642 | 0 | 2 | 0 |
| CG | TGCGGG | 0.05224 | 0 | 2 | 0 |
| CG | TGTGGG | 0.1007 | 0 | 2 | 0 |
| CG | TGTGGA | 0.1045 | 0 | 2 | 0 |
| CG | TGTGGT | 0.3918 | 1 | 2 | 0.5 |
| CG | TGCGGT | 0.1045 | 1 | 2 | 0.5 |
| CH | TGTCAC | 0.2157 | 0 | 0 | 0 |
| CH | TGTCAT | 0.402 | 0 | 0 | 0 |
| CH | TGCCAT | 0.2451 | 0 | 0 | 0 |
| CH | TGCCAC | 0.1373 | 0 | 0 | 0 |
| CI | TGTATC | 0.1901 | 0 | 0 | 0 |
| CI | TGTATA | 0.1074 | 0 | 0 | 0 |
| CI | TGCATA | 0.1364 | 0 | 0 | 0 |
| CI | TGTATT | 0.2355 | 0 | 0 | 0 |
| CI | TGCATT | 0.2066 | 0 | 0 | 0 |
| CI | TGCATC | 0.124 | 0 | 0 | 0 |
| CK | TGTAAG | 0.3812 | 0 | 0 | 0 |
| CK | TGTAAG | 0.2063 | 0 | 0 | 0 |
| CK | TGCAAG | 0.1614 | 0 | 0 | 0 |
| CK | TGCAAA | 0.2511 | 0 | 0 | 0 |
| CL | TGCCTT | 0.06322 | 0 | 0 | 0 |
| CL | TGCCTC | 0.02011 | 0 | 0 | 0 |
| CL | TGCCTA | 0.0546 | 0 | 0 | 0 |
| CL | TGTTTA | 0.1925 | 0 | 0 | 0 |
| CL | TGCTTA | 0.08333 | 0 | 0 | 0 |
| CL | TGCTTG | 0.07759 | 0 | 0 | 0 |
| CL | TGTCTA | 0.1063 | 0 | 0 | 0 |
| CL | TGTCTC | 0.03736 | 0 | 0 | 0 |
| CL | TGTCTG | 0.07184 | 0 | 0 | 0 |
| CL | TGTCTT | 0.07184 | 0 | 0 | 0 |
| CL | TGTTTG | 0.1925 | 0 | 0 | 0 |
| CL | TGCCTG | 0.02874 | 0 | 0 | 0 |
| CM | TGTATG | 0.4571 | 0 | 0 | 0 |
| CM | TGCATG | 0.5429 | 0 | 0 | 0 |
| CN | TGCAAC | 0.1366 | 0 | 1 | 0 |
| CN | TGCAAT | 0.3005 | 0 | 1 | 0 |
| CN | TGTAAC | 0.2186 | 1 | 1 | 1 |
| CN | TGTAAT | 0.3443 | 0 | 1 | 0 |
| CP | TGTCCC | 0.1638 | 0 | 0 | 0 |
| CP | TGTCCT | 0.2712 | 0 | 0 | 0 |
| CP | TGCCCG | 0.0226 | 0 | 0 | 0 |
| CP | TGTCCG | 0.06215 | 0 | 0 | 0 |
| CP | TGCCCA | 0.1073 | 0 | 0 | 0 |

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|----|---------|----------|---|---|---|
| CP | TGCCCC | 0.0565 | 0 | 0 | 0 |
| CP | TGTCCA | 0.2147 | 0 | 0 | 0 |
| CP | TGCCCT | 0.1017 | 0 | 0 | 0 |
| CQ | TGTCAG | 0.1511 | 0 | 0 | 0 |
| CQ | TGCCAG | 0.08633 | 0 | 0 | 0 |
| CQ | TGTCAA | 0.5108 | 0 | 0 | 0 |
| CQ | TGCCAA | 0.2518 | 0 | 0 | 0 |
| CR | TGTAGG | 0.1399 | 0 | 0 | 0 |
| CR | TGCCGT | 0.09091 | 0 | 0 | 0 |
| CR | TGCCGC | 0.006993 | 0 | 0 | 0 |
| CR | TGCCGA | 0.06294 | 0 | 0 | 0 |
| CR | TGTCGG | 0.02797 | 0 | 0 | 0 |
| CR | TGTCGC | 0.05594 | 0 | 0 | 0 |
| CR | TGCAGA | 0.1469 | 0 | 0 | 0 |
| CR | TGCCGG | 0.02797 | 0 | 0 | 0 |
| CR | TGTCGT | 0.1049 | 0 | 0 | 0 |
| CR | TGCAGG | 0.07692 | 0 | 0 | 0 |
| CR | TGTAGA | 0.2378 | 0 | 0 | 0 |
| CR | TGTCGA | 0.02098 | 0 | 0 | 0 |
| CS | TGTAGC | 0.04651 | 0 | 1 | 0 |
| CS | TGCTCA | 0.07309 | 0 | 1 | 0 |
| CS | TGTTCC | 0.1163 | 0 | 1 | 0 |
| CS | TGTTCCG | 0.04651 | 0 | 1 | 0 |
| CS | TGTTCT | 0.1894 | 1 | 1 | 1 |
| CS | TGCAGT | 0.0598 | 0 | 1 | 0 |
| CS | TGTTCA | 0.1196 | 0 | 1 | 0 |
| CS | TGCAGC | 0.0299 | 0 | 1 | 0 |
| CS | TGCTCT | 0.1296 | 0 | 1 | 0 |
| CS | TGCTCG | 0.03987 | 0 | 1 | 0 |
| CS | TGCTCC | 0.0897 | 0 | 1 | 0 |
| CS | TGTAGT | 0.0598 | 0 | 1 | 0 |
| CT | TGCACT | 0.09626 | 0 | 1 | 0 |
| CT | TGTACA | 0.1551 | 0 | 1 | 0 |
| CT | TGCACG | 0.05882 | 0 | 1 | 0 |
| CT | TGTACC | 0.1123 | 0 | 1 | 0 |
| CT | TGTACT | 0.2674 | 1 | 1 | 1 |
| CT | TGCACC | 0.08021 | 0 | 1 | 0 |
| CT | TGCACA | 0.1444 | 0 | 1 | 0 |
| CT | TGTACG | 0.08556 | 0 | 1 | 0 |
| CV | TGCGTA | 0.09705 | 0 | 0 | 0 |
| CV | TGCGTG | 0.05485 | 0 | 0 | 0 |
| CV | TGTGTA | 0.08439 | 0 | 0 | 0 |
| CV | TGTGTC | 0.1814 | 0 | 0 | 0 |
| CV | TGTGTT | 0.2869 | 0 | 0 | 0 |
| CV | TGTGTG | 0.09283 | 0 | 0 | 0 |
| CV | TGCGTT | 0.1308 | 0 | 0 | 0 |
| CV | TGCGTC | 0.07173 | 0 | 0 | 0 |
| CW | TGCTGG | 0.439 | 0 | 0 | 0 |
| CW | TGTTGG | 0.561 | 0 | 0 | 0 |
| CY | TGCTAT | 0.2707 | 0 | 0 | 0 |
| CY | TGCTAC | 0.1955 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| CY | TGTTAT | 0.3233 | 0 | 0 | 0 |
| CY | TGTTAC | 0.2105 | 0 | 0 | 0 |
| D* | GACTAG | 0 | 0 | 0 | 0 |
| D* | GATTGA | 0.2143 | 0 | 0 | 0 |
| D* | GACTGA | 0.03571 | 0 | 0 | 0 |
| D* | GACTAA | 0.1786 | 0 | 0 | 0 |
| D* | GATTAG | 0.2857 | 0 | 0 | 0 |
| D* | GATTAA | 0.2857 | 0 | 0 | 0 |
| DA | GACGCT | 0.09036 | 0 | 0 | 0 |
| DA | GATGCT | 0.312 | 0 | 0 | 0 |
| DA | GATGCA | 0.1867 | 0 | 0 | 0 |
| DA | GATGCC | 0.1554 | 0 | 0 | 0 |
| DA | GACGCC | 0.05783 | 0 | 0 | 0 |
| DA | GACGCA | 0.09157 | 0 | 0 | 0 |
| DA | GATGCG | 0.07831 | 0 | 0 | 0 |
| DA | GACGCG | 0.02771 | 0 | 0 | 0 |
| DC | GATTGC | 0.1919 | 0 | 0 | 0 |
| DC | GATTGT | 0.3953 | 0 | 0 | 0 |
| DC | GACTGC | 0.1686 | 0 | 0 | 0 |
| DC | GACTGT | 0.2442 | 0 | 0 | 0 |
| DD | GATGAT | 0.4394 | 0 | 0 | 0 |
| DD | GATGAC | 0.243 | 0 | 0 | 0 |
| DD | GACGAT | 0.1971 | 0 | 0 | 0 |
| DD | GACGAC | 0.1204 | 0 | 0 | 0 |
| DE | GATGAG | 0.2278 | 0 | 0 | 0 |
| DE | GACGAA | 0.2068 | 0 | 0 | 0 |
| DE | GACGAG | 0.08098 | 0 | 0 | 0 |
| DE | GATGAA | 0.4845 | 0 | 0 | 0 |
| DF | GACTTT | 0.1952 | 0 | 0 | 0 |
| DF | GATTTT | 0.4233 | 0 | 0 | 0 |
| DF | GATTTT | 0.256 | 0 | 0 | 0 |
| DF | GACTTC | 0.1255 | 0 | 0 | 0 |
| DG | GATGGT | 0.3074 | 0 | 0 | 0 |
| DG | GATGGC | 0.1324 | 0 | 0 | 0 |
| DG | GACGGA | 0.06561 | 0 | 0 | 0 |
| DG | GATGGA | 0.1422 | 0 | 0 | 0 |
| DG | GACGGT | 0.1434 | 0 | 0 | 0 |
| DG | GATGGG | 0.1033 | 0 | 0 | 0 |
| DG | GACGGC | 0.07412 | 0 | 0 | 0 |
| DG | GACGGG | 0.03159 | 0 | 0 | 0 |
| DH | GATCAT | 0.4286 | 0 | 0 | 0 |
| DH | GATCAC | 0.2056 | 0 | 0 | 0 |
| DH | GACCAC | 0.1429 | 0 | 0 | 0 |
| DH | GACCAT | 0.223 | 0 | 0 | 0 |
| DI | GACATT | 0.1537 | 0 | 0 | 0 |
| DI | GACATA | 0.08762 | 0 | 0 | 0 |
| DI | GACATC | 0.09685 | 0 | 0 | 0 |
| DI | GATATA | 0.1806 | 0 | 0 | 0 |
| DI | GATATT | 0.3059 | 0 | 0 | 0 |
| DI | GATATC | 0.1752 | 0 | 0 | 0 |
| DK | GACAAG | 0.1655 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| DK | GATAAG | 0.2281 | 0 | 0 | 0 |
| DK | GACAAA | 0.2341 | 0 | 0 | 0 |
| DK | GATAAA | 0.3724 | 0 | 0 | 0 |
| DL | GATCTT | 0.07233 | 0 | 1 | 0 |
| DL | GACTTA | 0.09057 | 0 | 1 | 0 |
| DL | GACTTG | 0.09811 | 0 | 1 | 0 |
| DL | GATTTA | 0.2075 | 1 | 1 | 1 |
| DL | GATTTG | 0.2208 | 0 | 1 | 0 |
| DL | GACCTT | 0.04528 | 0 | 1 | 0 |
| DL | GACCTG | 0.0327 | 0 | 1 | 0 |
| DL | GATCTG | 0.04654 | 0 | 1 | 0 |
| DL | GACCTA | 0.04025 | 0 | 1 | 0 |
| DL | GACCTC | 0.0195 | 0 | 1 | 0 |
| DL | GATCTA | 0.0761 | 0 | 1 | 0 |
| DL | GATCTC | 0.05031 | 0 | 1 | 0 |
| DM | GACATG | 0.3795 | 0 | 0 | 0 |
| DM | GATATG | 0.6205 | 0 | 0 | 0 |
| DN | GATAAC | 0.2082 | 0 | 0 | 0 |
| DN | GATAAT | 0.3905 | 0 | 0 | 0 |
| DN | GACAAT | 0.2245 | 0 | 0 | 0 |
| DN | GACAAC | 0.1768 | 0 | 0 | 0 |
| DP | GACCCA | 0.1736 | 0 | 1 | 0 |
| DP | GACCCG | 0.02917 | 0 | 1 | 0 |
| DP | GACCCT | 0.1222 | 0 | 1 | 0 |
| DP | GATCCG | 0.08056 | 0 | 1 | 0 |
| DP | GATCCT | 0.1958 | 0 | 1 | 0 |
| DP | GACCCC | 0.06528 | 0 | 1 | 0 |
| DP | GATCCC | 0.1014 | 0 | 1 | 0 |
| DP | GATCCA | 0.2319 | 1 | 1 | 1 |
| DQ | GATCAG | 0.1737 | 0 | 0 | 0 |
| DQ | GACCAG | 0.1475 | 0 | 0 | 0 |
| DQ | GACCAA | 0.2869 | 0 | 0 | 0 |
| DQ | GATCAA | 0.3919 | 0 | 0 | 0 |
| DR | GACCGG | 0.01307 | 0 | 0 | 0 |
| DR | GACCGT | 0.07843 | 0 | 0 | 0 |
| DR | GACAGA | 0.1683 | 0 | 0 | 0 |
| DR | GATAGA | 0.2647 | 0 | 0 | 0 |
| DR | GACCGC | 0.03758 | 0 | 0 | 0 |
| DR | GATCGG | 0.01307 | 0 | 0 | 0 |
| DR | GATCGC | 0.03758 | 0 | 0 | 0 |
| DR | GATCGA | 0.04412 | 0 | 0 | 0 |
| DR | GACCGA | 0.01307 | 0 | 0 | 0 |
| DR | GACAGG | 0.08987 | 0 | 0 | 0 |
| DR | GATCGT | 0.1176 | 0 | 0 | 0 |
| DR | GATAGG | 0.1225 | 0 | 0 | 0 |
| DS | GACAGC | 0.04102 | 0 | 0 | 0 |
| DS | GATTCT | 0.05882 | 0 | 0 | 0 |
| DS | GATAGC | 0.07043 | 0 | 0 | 0 |
| DS | GATAGT | 0.09752 | 0 | 0 | 0 |
| DS | GACTCT | 0.1138 | 0 | 0 | 0 |
| DS | GACTCG | 0.02941 | 0 | 0 | 0 |

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|----|--------|---------|---|---|-----|
| DS | GACAGT | 0.05805 | 0 | 0 | 0 |
| DS | GATTCA | 0.1455 | 0 | 0 | 0 |
| DS | GATTCT | 0.1749 | 0 | 0 | 0 |
| DS | GACTCA | 0.05418 | 0 | 0 | 0 |
| DS | GACTCC | 0.05108 | 0 | 0 | 0 |
| DS | GATTCC | 0.1053 | 0 | 0 | 0 |
| DT | GATACA | 0.1953 | 0 | 0 | 0 |
| DT | GACACC | 0.1012 | 0 | 0 | 0 |
| DT | GACACG | 0.02588 | 0 | 0 | 0 |
| DT | GACACT | 0.14 | 0 | 0 | 0 |
| DT | GATACG | 0.08941 | 0 | 0 | 0 |
| DT | GATACT | 0.2153 | 0 | 0 | 0 |
| DT | GATACC | 0.1153 | 0 | 0 | 0 |
| DT | GACACA | 0.1176 | 0 | 0 | 0 |
| DV | GATGTA | 0.146 | 0 | 0 | 0 |
| DV | GACGTT | 0.1366 | 0 | 0 | 0 |
| DV | GACGTA | 0.07143 | 0 | 0 | 0 |
| DV | GACGTC | 0.04762 | 0 | 0 | 0 |
| DV | GACGTG | 0.04658 | 0 | 0 | 0 |
| DV | GATGTG | 0.1263 | 0 | 0 | 0 |
| DV | GATGTC | 0.1429 | 0 | 0 | 0 |
| DV | GATGTT | 0.2826 | 0 | 0 | 0 |
| DW | GATTGG | 0.604 | 0 | 0 | 0 |
| DW | GACTGG | 0.396 | 0 | 0 | 0 |
| DY | GACTAC | 0.1672 | 0 | 0 | 0 |
| DY | GATTAT | 0.3763 | 0 | 0 | 0 |
| DY | GACTAT | 0.2056 | 0 | 0 | 0 |
| DY | GATTAC | 0.2509 | 0 | 0 | 0 |
| E* | GAGTAG | 0.04167 | 0 | 0 | 0 |
| E* | GAATAG | 0.1875 | 0 | 0 | 0 |
| E* | GAGTAA | 0.1875 | 0 | 0 | 0 |
| E* | GAGTGA | 0.0625 | 0 | 0 | 0 |
| E* | GAATAA | 0.3333 | 0 | 0 | 0 |
| E* | GAATGA | 0.1875 | 0 | 0 | 0 |
| EA | GAAGCA | 0.1987 | 1 | 2 | 0.5 |
| EA | GAGGCA | 0.1009 | 0 | 2 | 0 |
| EA | GAAGCC | 0.1493 | 0 | 2 | 0 |
| EA | GAGGCG | 0.03575 | 0 | 2 | 0 |
| EA | GAGGCC | 0.07361 | 0 | 2 | 0 |
| EA | GAGGCT | 0.1062 | 0 | 2 | 0 |
| EA | GAAGCG | 0.0694 | 0 | 2 | 0 |
| EA | GAAGCT | 0.266 | 1 | 2 | 0.5 |
| EC | GAATGT | 0.4892 | 0 | 0 | 0 |
| EC | GAGTGT | 0.1183 | 0 | 0 | 0 |
| EC | GAATGC | 0.2527 | 0 | 0 | 0 |
| EC | GAGTGC | 0.1398 | 0 | 0 | 0 |
| ED | GAGGAC | 0.1132 | 0 | 1 | 0 |
| ED | GAAGAC | 0.2223 | 0 | 1 | 0 |
| ED | GAAGAT | 0.4678 | 1 | 1 | 1 |
| ED | GAGGAT | 0.1967 | 0 | 1 | 0 |
| EE | GAGGAG | 0.09137 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| EE | GAGGAA | 0.1844 | 0 | 0 | 0 |
| EE | GAAGAG | 0.207 | 0 | 0 | 0 |
| EE | GAAGAA | 0.5172 | 0 | 0 | 0 |
| EF | GAGTTT | 0.2567 | 0 | 0 | 0 |
| EF | GAGTTC | 0.1052 | 0 | 0 | 0 |
| EF | GAATTT | 0.425 | 0 | 0 | 0 |
| EF | GAATTC | 0.2132 | 0 | 0 | 0 |
| EG | GAGGGA | 0.07602 | 0 | 1 | 0 |
| EG | GAGGGG | 0.03801 | 0 | 1 | 0 |
| EG | GAAGGC | 0.1376 | 0 | 1 | 0 |
| EG | GAAGGG | 0.09305 | 0 | 1 | 0 |
| EG | GAGGGT | 0.09567 | 0 | 1 | 0 |
| EG | GAAGGA | 0.1638 | 0 | 1 | 0 |
| EG | GAAGGT | 0.3316 | 1 | 1 | 1 |
| EG | GAGGGC | 0.06422 | 0 | 1 | 0 |
| EH | GAGCAT | 0.2704 | 0 | 0 | 0 |
| EH | GAACAC | 0.2 | 0 | 0 | 0 |
| EH | GAGCAC | 0.1437 | 0 | 0 | 0 |
| EH | GAACAT | 0.3859 | 0 | 0 | 0 |
| EI | GAAATA | 0.2061 | 0 | 0 | 0 |
| EI | GAAATC | 0.1778 | 0 | 0 | 0 |
| EI | GAGATA | 0.07761 | 0 | 0 | 0 |
| EI | GAGATC | 0.07033 | 0 | 0 | 0 |
| EI | GAGATT | 0.1124 | 0 | 0 | 0 |
| EI | GAAATT | 0.3557 | 0 | 0 | 0 |
| EK | GAAAAA | 0.3895 | 0 | 0 | 0 |
| EK | GAGAAG | 0.118 | 0 | 0 | 0 |
| EK | GAGAAA | 0.1851 | 0 | 0 | 0 |
| EK | GAAAAG | 0.3074 | 0 | 0 | 0 |
| EL | GAGTTA | 0.0776 | 0 | 1 | 0 |
| EL | GAGTTG | 0.07541 | 0 | 1 | 0 |
| EL | GAATTG | 0.1798 | 1 | 1 | 1 |
| EL | GAATTA | 0.1836 | 0 | 1 | 0 |
| EL | GAACTA | 0.1126 | 0 | 1 | 0 |
| EL | GAACTC | 0.0377 | 0 | 1 | 0 |
| EL | GAGCTT | 0.04426 | 0 | 1 | 0 |
| EL | GAACTT | 0.07596 | 0 | 1 | 0 |
| EL | GAGCTC | 0.0235 | 0 | 1 | 0 |
| EL | GAGCTA | 0.06175 | 0 | 1 | 0 |
| EL | GAACTG | 0.07923 | 0 | 1 | 0 |
| EL | GAGCTG | 0.04863 | 0 | 1 | 0 |
| EM | GAGATG | 0.2391 | 0 | 0 | 0 |
| EM | GAAATG | 0.7609 | 0 | 0 | 0 |
| EN | GAAAAT | 0.4459 | 1 | 1 | 1 |
| EN | GAAAAC | 0.2611 | 0 | 1 | 0 |
| EN | GAGAAT | 0.1744 | 0 | 1 | 0 |
| EN | GAGAAC | 0.1186 | 0 | 1 | 0 |
| EP | GAACCG | 0.08318 | 0 | 0 | 0 |
| EP | GAGCCG | 0.04521 | 0 | 0 | 0 |
| EP | GAACCA | 0.226 | 0 | 0 | 0 |
| EP | GAACCC | 0.09765 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| EP | GAGCCT | 0.1465 | 0 | 0 | 0 |
| EP | GAACCT | 0.1899 | 0 | 0 | 0 |
| EP | GAGCCA | 0.1429 | 0 | 0 | 0 |
| EP | GAGCCC | 0.06872 | 0 | 0 | 0 |
| EQ | GAACAA | 0.4405 | 1 | 1 | 1 |
| EQ | GAGCAG | 0.119 | 0 | 1 | 0 |
| EQ | GAACAG | 0.2024 | 0 | 1 | 0 |
| EQ | GAGCAA | 0.2381 | 0 | 1 | 0 |
| ER | GAACGG | 0.04815 | 0 | 1 | 0 |
| ER | GAACGA | 0.06173 | 0 | 1 | 0 |
| ER | GAAAGG | 0.1556 | 0 | 1 | 0 |
| ER | GAGAGG | 0.0642 | 0 | 1 | 0 |
| ER | GAAAGA | 0.3753 | 1 | 1 | 1 |
| ER | GAGCGA | 0.01358 | 0 | 1 | 0 |
| ER | GAGCGG | 0.009877 | 0 | 1 | 0 |
| ER | GAGCGT | 0.03333 | 0 | 1 | 0 |
| ER | GAGCGC | 0.01358 | 0 | 1 | 0 |
| ER | GAACGT | 0.08642 | 0 | 1 | 0 |
| ER | GAACGC | 0.02716 | 0 | 1 | 0 |
| ER | GAGAGA | 0.1111 | 0 | 1 | 0 |
| ES | GAGTCT | 0.05997 | 0 | 0 | 0 |
| ES | GAGTCA | 0.053 | 0 | 0 | 0 |
| ES | GAGTCG | 0.03278 | 0 | 0 | 0 |
| ES | GAATCG | 0.05718 | 0 | 0 | 0 |
| ES | GAGTCC | 0.02929 | 0 | 0 | 0 |
| ES | GAAAGT | 0.1681 | 0 | 0 | 0 |
| ES | GAATCT | 0.1778 | 0 | 0 | 0 |
| ES | GAGAGT | 0.04812 | 0 | 0 | 0 |
| ES | GAGAGC | 0.03626 | 0 | 0 | 0 |
| ES | GAATCC | 0.1046 | 0 | 0 | 0 |
| ES | GAATCA | 0.1353 | 0 | 0 | 0 |
| ES | GAAAGC | 0.09763 | 0 | 0 | 0 |
| ET | GAAACG | 0.1312 | 0 | 0 | 0 |
| ET | GAGACG | 0.03748 | 0 | 0 | 0 |
| ET | GAGACC | 0.04339 | 0 | 0 | 0 |
| ET | GAAACT | 0.286 | 0 | 0 | 0 |
| ET | GAGACA | 0.08679 | 0 | 0 | 0 |
| ET | GAAACC | 0.1203 | 0 | 0 | 0 |
| ET | GAGACT | 0.07692 | 0 | 0 | 0 |
| ET | GAAACA | 0.2179 | 0 | 0 | 0 |
| EV | GAAGTG | 0.1398 | 0 | 0 | 0 |
| EV | GAAGTT | 0.2797 | 0 | 0 | 0 |
| EV | GAAGTC | 0.1459 | 0 | 0 | 0 |
| EV | GAAGTA | 0.1459 | 0 | 0 | 0 |
| EV | GAGGTC | 0.05734 | 0 | 0 | 0 |
| EV | GAGGTT | 0.1107 | 0 | 0 | 0 |
| EV | GAGGTG | 0.0493 | 0 | 0 | 0 |
| EV | GAGGTA | 0.07143 | 0 | 0 | 0 |
| EW | GAATGG | 0.6452 | 0 | 0 | 0 |
| EW | GAGTGG | 0.3548 | 0 | 0 | 0 |
| EY | GAATAT | 0.3866 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| EY | GAATAC | 0.292 | 0 | 0 | 0 |
| EY | GAGTAT | 0.2055 | 0 | 0 | 0 |
| EY | GAGTAC | 0.1158 | 0 | 0 | 0 |
| F* | TTTTGA | 0.129 | 0 | 0 | 0 |
| F* | TTCTAA | 0.2258 | 0 | 0 | 0 |
| F* | TTTTAA | 0.2581 | 0 | 0 | 0 |
| F* | TTCTAG | 0.09677 | 0 | 0 | 0 |
| F* | TTCTGA | 0.03226 | 0 | 0 | 0 |
| F* | TTTTAG | 0.2581 | 0 | 0 | 0 |
| FA | TTCGCT | 0.07439 | 0 | 0 | 0 |
| FA | TTTGCG | 0.09585 | 0 | 0 | 0 |
| FA | TTCGCG | 0.01288 | 0 | 0 | 0 |
| FA | TTCGCA | 0.06581 | 0 | 0 | 0 |
| FA | TTTGCT | 0.2876 | 0 | 0 | 0 |
| FA | TTTGCA | 0.206 | 0 | 0 | 0 |
| FA | TTTGCC | 0.206 | 0 | 0 | 0 |
| FA | TTCGCC | 0.0515 | 0 | 0 | 0 |
| FC | TTTTGT | 0.3216 | 0 | 0 | 0 |
| FC | TTTTGC | 0.2281 | 0 | 0 | 0 |
| FC | TTCTGC | 0.2105 | 0 | 0 | 0 |
| FC | TTCTGT | 0.2398 | 0 | 0 | 0 |
| FD | TTCGAT | 0.1947 | 0 | 0 | 0 |
| FD | TTCGAC | 0.09597 | 0 | 0 | 0 |
| FD | TTTGAC | 0.2406 | 0 | 0 | 0 |
| FD | TTTGAT | 0.4687 | 0 | 0 | 0 |
| FE | TTCGAG | 0.1029 | 0 | 0 | 0 |
| FE | TTCGAA | 0.1966 | 0 | 0 | 0 |
| FE | TTTGAG | 0.1887 | 0 | 0 | 0 |
| FE | TTTGAA | 0.5119 | 0 | 0 | 0 |
| FF | TTCTTT | 0.1985 | 0 | 1 | 0 |
| FF | TTTTTT | 0.2987 | 0 | 1 | 0 |
| FF | TTTTTC | 0.3297 | 1 | 1 | 1 |
| FF | TTCTTC | 0.173 | 0 | 1 | 0 |
| FG | TTTGGA | 0.1706 | 0 | 0 | 0 |
| FG | TTCGGA | 0.03357 | 0 | 0 | 0 |
| FG | TTCGGG | 0.02797 | 0 | 0 | 0 |
| FG | TTCGGC | 0.05315 | 0 | 0 | 0 |
| FG | TTTGGC | 0.1343 | 0 | 0 | 0 |
| FG | TTTGGG | 0.07692 | 0 | 0 | 0 |
| FG | TTTGGT | 0.3259 | 0 | 0 | 0 |
| FG | TTCGGT | 0.1776 | 0 | 0 | 0 |
| FH | TTCCAC | 0.153 | 0 | 0 | 0 |
| FH | TTTCAT | 0.3488 | 0 | 0 | 0 |
| FH | TTCCAT | 0.3025 | 0 | 0 | 0 |
| FH | TTTCAC | 0.1957 | 0 | 0 | 0 |
| FI | TTCATA | 0.09797 | 0 | 0 | 0 |
| FI | TTTATA | 0.1266 | 0 | 0 | 0 |
| FI | TTTATT | 0.2748 | 0 | 0 | 0 |
| FI | TTTATC | 0.1458 | 0 | 0 | 0 |
| FI | TTCATC | 0.1338 | 0 | 0 | 0 |
| FI | TTCATT | 0.221 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| FK | TTTAAG | 0.146 | 0 | 0 | 0 |
| FK | TTCAAA | 0.3759 | 0 | 0 | 0 |
| FK | TTCAAG | 0.2402 | 0 | 0 | 0 |
| FK | TTTAAA | 0.2379 | 0 | 0 | 0 |
| FL | TTCTTG | 0.113 | 0 | 0 | 0 |
| FL | TTTCTA | 0.06436 | 0 | 0 | 0 |
| FL | TTTCTG | 0.06023 | 0 | 0 | 0 |
| FL | TTCCTC | 0.01815 | 0 | 0 | 0 |
| FL | TTCCTG | 0.03548 | 0 | 0 | 0 |
| FL | TTCCTT | 0.0429 | 0 | 0 | 0 |
| FL | TTTTTG | 0.1922 | 0 | 0 | 0 |
| FL | TTCCTA | 0.05033 | 0 | 0 | 0 |
| FL | TTCTTA | 0.09983 | 0 | 0 | 0 |
| FL | TTTTTA | 0.2071 | 0 | 0 | 0 |
| FL | TTTCTT | 0.07756 | 0 | 0 | 0 |
| FL | TTTCTC | 0.03878 | 0 | 0 | 0 |
| FM | TTTATG | 0.5157 | 0 | 0 | 0 |
| FM | TTCATG | 0.4843 | 0 | 0 | 0 |
| FN | TTCAAC | 0.249 | 0 | 0 | 0 |
| FN | TTTAAT | 0.2337 | 0 | 0 | 0 |
| FN | TTTAAC | 0.1867 | 0 | 0 | 0 |
| FN | TTCAAT | 0.3306 | 0 | 0 | 0 |
| FP | TTTCCA | 0.2314 | 0 | 0 | 0 |
| FP | TTTCCG | 0.0742 | 0 | 0 | 0 |
| FP | TTTCCC | 0.1166 | 0 | 0 | 0 |
| FP | TTTCCT | 0.1643 | 0 | 0 | 0 |
| FP | TTCCCG | 0.0371 | 0 | 0 | 0 |
| FP | TTCCCA | 0.1625 | 0 | 0 | 0 |
| FP | TTCCCC | 0.08304 | 0 | 0 | 0 |
| FP | TTCCCT | 0.1307 | 0 | 0 | 0 |
| FQ | TTCCAA | 0.3055 | 0 | 0 | 0 |
| FQ | TTCCAG | 0.1618 | 0 | 0 | 0 |
| FQ | TTTCAG | 0.1564 | 0 | 0 | 0 |
| FQ | TTTCAA | 0.3764 | 0 | 0 | 0 |
| FR | TTCCGA | 0.0251 | 0 | 0 | 0 |
| FR | TTTCGG | 0.0251 | 0 | 0 | 0 |
| FR | TTCCGT | 0.07531 | 0 | 0 | 0 |
| FR | TTCCGC | 0.0251 | 0 | 0 | 0 |
| FR | TTCCGG | 0.008368 | 0 | 0 | 0 |
| FR | TTTCGC | 0.03766 | 0 | 0 | 0 |
| FR | TTTCGT | 0.05858 | 0 | 0 | 0 |
| FR | TTCAGA | 0.2469 | 0 | 0 | 0 |
| FR | TTTAGA | 0.2531 | 0 | 0 | 0 |
| FR | TTTCGA | 0.04184 | 0 | 0 | 0 |
| FR | TTCAGG | 0.09833 | 0 | 0 | 0 |
| FR | TTTAGG | 0.1046 | 0 | 0 | 0 |
| FS | TTTAGC | 0.05289 | 0 | 0 | 0 |
| FS | TTCTCC | 0.05389 | 0 | 0 | 0 |
| FS | TTCTCT | 0.07784 | 0 | 0 | 0 |
| FS | TTCTCG | 0.02894 | 0 | 0 | 0 |
| FS | TTCTCA | 0.05788 | 0 | 0 | 0 |

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|----|---------|---------|---|---|---|
| FS | TTTTCA | 0.1417 | 0 | 0 | 0 |
| FS | TTTTCT | 0.2006 | 0 | 0 | 0 |
| FS | TTCAGC | 0.04491 | 0 | 0 | 0 |
| FS | TTTTCC | 0.1088 | 0 | 0 | 0 |
| FS | TTTAGT | 0.08683 | 0 | 0 | 0 |
| FS | TTTTCG | 0.06587 | 0 | 0 | 0 |
| FS | TTCAGT | 0.07984 | 0 | 0 | 0 |
| FT | TTCACA | 0.1097 | 0 | 0 | 0 |
| FT | TTCACC | 0.1255 | 0 | 0 | 0 |
| FT | TTCACG | 0.06638 | 0 | 0 | 0 |
| FT | TTTACA | 0.1299 | 0 | 0 | 0 |
| FT | TTCACT | 0.1602 | 0 | 0 | 0 |
| FT | TTTACG | 0.07792 | 0 | 0 | 0 |
| FT | TTTACC | 0.1255 | 0 | 0 | 0 |
| FT | TTTACT | 0.2049 | 0 | 0 | 0 |
| FV | TTTGTC | 0.1437 | 0 | 1 | 0 |
| FV | TTCGTT | 0.1178 | 0 | 1 | 0 |
| FV | TTCGTG | 0.04454 | 0 | 1 | 0 |
| FV | TTCGTC | 0.05747 | 0 | 1 | 0 |
| FV | TTCGTA | 0.04454 | 0 | 1 | 0 |
| FV | TTTG TG | 0.1193 | 0 | 1 | 0 |
| FV | TTTGTA | 0.1552 | 0 | 1 | 0 |
| FV | TTTGTT | 0.3175 | 1 | 1 | 1 |
| FW | TTTTGG | 0.625 | 0 | 0 | 0 |
| FW | TTCTGG | 0.375 | 0 | 0 | 0 |
| FY | TTTTAT | 0.3499 | 0 | 1 | 0 |
| FY | TTTTAC | 0.3251 | 0 | 1 | 0 |
| FY | TTCTAC | 0.1491 | 0 | 1 | 0 |
| FY | TTCTAT | 0.176 | 1 | 1 | 1 |
| G* | GGGTAG | 0 | 0 | 0 | 0 |
| G* | GGGTAA | 0 | 0 | 0 | 0 |
| G* | GGCTAA | 0.1176 | 0 | 0 | 0 |
| G* | GGCTGA | 0.1176 | 0 | 0 | 0 |
| G* | GGCTAG | 0 | 0 | 0 | 0 |
| G* | GGGTGA | 0.05882 | 0 | 0 | 0 |
| G* | GGATAA | 0.05882 | 0 | 0 | 0 |
| G* | GGTTGA | 0.2353 | 0 | 0 | 0 |
| G* | GGTTAG | 0 | 0 | 0 | 0 |
| G* | GGTTAA | 0.1765 | 0 | 0 | 0 |
| G* | GGATAG | 0.05882 | 0 | 0 | 0 |
| G* | GGATGA | 0.1765 | 0 | 0 | 0 |
| GA | GGCGCG | 0.0224 | 0 | 1 | 0 |
| GA | GGCGCT | 0.07378 | 0 | 1 | 0 |
| GA | GGAGCT | 0.04348 | 0 | 1 | 0 |
| GA | GGTGCG | 0.04611 | 0 | 1 | 0 |
| GA | GGAGCC | 0.0527 | 0 | 1 | 0 |
| GA | GGCGCC | 0.0448 | 0 | 1 | 0 |
| GA | GGCGCA | 0.04084 | 0 | 1 | 0 |
| GA | GGTGCC | 0.1542 | 0 | 1 | 0 |
| GA | GGTGCA | 0.1212 | 0 | 1 | 0 |
| GA | GGTGCT | 0.2134 | 1 | 1 | 1 |

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|----|--------|----------|---|---|-----|
| GA | GGAGCA | 0.06851 | 0 | 1 | 0 |
| GA | GGAGCG | 0.01449 | 0 | 1 | 0 |
| GA | GGGGCC | 0.02767 | 0 | 1 | 0 |
| GA | GGGGCA | 0.04348 | 0 | 1 | 0 |
| GA | GGGGCT | 0.02503 | 0 | 1 | 0 |
| GA | GGGGCG | 0.007905 | 0 | 1 | 0 |
| GC | GGATGT | 0.1745 | 0 | 0 | 0 |
| GC | GGCTGC | 0.06132 | 0 | 0 | 0 |
| GC | GGGTGT | 0.0566 | 0 | 0 | 0 |
| GC | GGGTGC | 0.0283 | 0 | 0 | 0 |
| GC | GGCTGT | 0.1698 | 0 | 0 | 0 |
| GC | GGATGC | 0.09906 | 0 | 0 | 0 |
| GC | GGTTGC | 0.1415 | 0 | 0 | 0 |
| GC | GGTTGT | 0.2689 | 0 | 0 | 0 |
| GD | GGCGAT | 0.13 | 0 | 0 | 0 |
| GD | GGAGAT | 0.1108 | 0 | 0 | 0 |
| GD | GGCGAC | 0.07934 | 0 | 0 | 0 |
| GD | GGGGAC | 0.03146 | 0 | 0 | 0 |
| GD | GGTGAC | 0.2052 | 0 | 0 | 0 |
| GD | GGAGAC | 0.07387 | 0 | 0 | 0 |
| GD | GGGGAT | 0.05198 | 0 | 0 | 0 |
| GD | GGTGAT | 0.3174 | 0 | 0 | 0 |
| GE | GGGGAA | 0.07627 | 0 | 1 | 0 |
| GE | GGGGAG | 0.03632 | 0 | 1 | 0 |
| GE | GGTGAA | 0.3632 | 1 | 1 | 1 |
| GE | GGTGAG | 0.1114 | 0 | 1 | 0 |
| GE | GGCGAA | 0.1199 | 0 | 1 | 0 |
| GE | GGCGAG | 0.04479 | 0 | 1 | 0 |
| GE | GGAGAG | 0.08959 | 0 | 1 | 0 |
| GE | GGAGAA | 0.1586 | 0 | 1 | 0 |
| GF | GGCTTC | 0.06122 | 0 | 1 | 0 |
| GF | GGATTC | 0.07692 | 0 | 1 | 0 |
| GF | GGCTTT | 0.09576 | 0 | 1 | 0 |
| GF | GGATTT | 0.2245 | 1 | 1 | 1 |
| GF | GGGTTT | 0.1507 | 0 | 1 | 0 |
| GF | GGGTTC | 0.08634 | 0 | 1 | 0 |
| GF | GGTTTT | 0.1429 | 0 | 1 | 0 |
| GF | GGTTTC | 0.1617 | 0 | 1 | 0 |
| GG | GGAGGA | 0.06805 | 0 | 2 | 0 |
| GG | GGGGGT | 0.02537 | 0 | 2 | 0 |
| GG | GGGGGA | 0.02537 | 0 | 2 | 0 |
| GG | GGTGGT | 0.323 | 1 | 2 | 0.5 |
| GG | GGGGGC | 0.02191 | 0 | 2 | 0 |
| GG | GGGGGG | 0.009227 | 0 | 2 | 0 |
| GG | GGAGGC | 0.02076 | 0 | 2 | 0 |
| GG | GGTGGA | 0.1073 | 1 | 2 | 0.5 |
| GG | GGAGGG | 0.03114 | 0 | 2 | 0 |
| GG | GGTGGC | 0.07497 | 0 | 2 | 0 |
| GG | GGCGGC | 0.03922 | 0 | 2 | 0 |
| GG | GGCGGG | 0.0173 | 0 | 2 | 0 |
| GG | GGCGGT | 0.06574 | 0 | 2 | 0 |

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|----|--------|---------|---|---|---|
| GG | GGTGGG | 0.06805 | 0 | 2 | 0 |
| GG | GGCGGA | 0.04729 | 0 | 2 | 0 |
| GG | GGAGGT | 0.05536 | 0 | 2 | 0 |
| GH | GGACAC | 0.1233 | 0 | 0 | 0 |
| GH | GGACAT | 0.1133 | 0 | 0 | 0 |
| GH | GGCCAC | 0.1133 | 0 | 0 | 0 |
| GH | GGGCAT | 0.08333 | 0 | 0 | 0 |
| GH | GGCCAT | 0.1733 | 0 | 0 | 0 |
| GH | GGTCAT | 0.2333 | 0 | 0 | 0 |
| GH | GGGCAC | 0.03333 | 0 | 0 | 0 |
| GH | GGTCAC | 0.1267 | 0 | 0 | 0 |
| GI | GGAATT | 0.08465 | 0 | 1 | 0 |
| GI | GGAATA | 0.07185 | 0 | 1 | 0 |
| GI | GGAATC | 0.05512 | 0 | 1 | 0 |
| GI | GGGATC | 0.01673 | 0 | 1 | 0 |
| GI | GGCATA | 0.06102 | 0 | 1 | 0 |
| GI | GGCATC | 0.04823 | 0 | 1 | 0 |
| GI | GGCATT | 0.07579 | 0 | 1 | 0 |
| GI | GGTATA | 0.1152 | 0 | 1 | 0 |
| GI | GGGATA | 0.04429 | 0 | 1 | 0 |
| GI | GGTATC | 0.1398 | 0 | 1 | 0 |
| GI | GGGATT | 0.03839 | 0 | 1 | 0 |
| GI | GGTATT | 0.249 | 1 | 1 | 1 |
| GK | GGTAAA | 0.2114 | 0 | 0 | 0 |
| GK | GGTAAG | 0.1797 | 0 | 0 | 0 |
| GK | GGGAAA | 0.0971 | 0 | 0 | 0 |
| GK | GGAAAA | 0.1588 | 0 | 0 | 0 |
| GK | GGGAAG | 0.06171 | 0 | 0 | 0 |
| GK | GGCAAA | 0.108 | 0 | 0 | 0 |
| GK | GGCAAG | 0.08076 | 0 | 0 | 0 |
| GK | GGAAAG | 0.1025 | 0 | 0 | 0 |
| GL | GGATTG | 0.05856 | 0 | 0 | 0 |
| GL | GGCCTA | 0.02553 | 0 | 0 | 0 |
| GL | GGATTA | 0.06081 | 0 | 0 | 0 |
| GL | GGACTG | 0.03003 | 0 | 0 | 0 |
| GL | GGACTA | 0.02628 | 0 | 0 | 0 |
| GL | GGTTTG | 0.1119 | 0 | 0 | 0 |
| GL | GGTTTA | 0.1329 | 0 | 0 | 0 |
| GL | GGACTC | 0.01201 | 0 | 0 | 0 |
| GL | GGCCTC | 0.01201 | 0 | 0 | 0 |
| GL | GGACTT | 0.02853 | 0 | 0 | 0 |
| GL | GGCCTT | 0.02703 | 0 | 0 | 0 |
| GL | GGGCTC | 0.00976 | 0 | 0 | 0 |
| GL | GGGCTA | 0.03453 | 0 | 0 | 0 |
| GL | GGGCTG | 0.02553 | 0 | 0 | 0 |
| GL | GGGCTT | 0.03153 | 0 | 0 | 0 |
| GL | GGGTTA | 0.04354 | 0 | 0 | 0 |
| GL | GGTCTA | 0.07432 | 0 | 0 | 0 |
| GL | GGTCTC | 0.02102 | 0 | 0 | 0 |
| GL | GGCTTA | 0.0458 | 0 | 0 | 0 |
| GL | GGGTTG | 0.04354 | 0 | 0 | 0 |

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|----|--------|----------|---|---|-----|
| GL | GGCTTG | 0.03679 | 0 | 0 | 0 |
| GL | GGTCTT | 0.04955 | 0 | 0 | 0 |
| GL | GGTCTG | 0.03453 | 0 | 0 | 0 |
| GL | GGCCTG | 0.02402 | 0 | 0 | 0 |
| GM | GGTATG | 0.5 | 0 | 0 | 0 |
| GM | GGAATG | 0.2361 | 0 | 0 | 0 |
| GM | GGGATG | 0.125 | 0 | 0 | 0 |
| GM | GGCATG | 0.1389 | 0 | 0 | 0 |
| GN | GGGAAT | 0.07666 | 0 | 0 | 0 |
| GN | GGCAAC | 0.07201 | 0 | 0 | 0 |
| GN | GGGAAC | 0.04065 | 0 | 0 | 0 |
| GN | GGTAAT | 0.2265 | 0 | 0 | 0 |
| GN | GGAAAC | 0.09524 | 0 | 0 | 0 |
| GN | GGCAAT | 0.1196 | 0 | 0 | 0 |
| GN | GGTAAC | 0.1858 | 0 | 0 | 0 |
| GN | GGAAAT | 0.1835 | 0 | 0 | 0 |
| GP | GGTCCC | 0.05333 | 0 | 2 | 0 |
| GP | GGGCC | 0.04 | 0 | 2 | 0 |
| GP | GGTCCG | 0.02476 | 0 | 2 | 0 |
| GP | GGTCCT | 0.1429 | 1 | 2 | 0.5 |
| GP | GGTCCA | 0.1657 | 0 | 2 | 0 |
| GP | GGGCCT | 0.0819 | 0 | 2 | 0 |
| GP | GGCCCG | 0.01714 | 0 | 2 | 0 |
| GP | GGCCCC | 0.04 | 0 | 2 | 0 |
| GP | GGCCCA | 0.0781 | 0 | 2 | 0 |
| GP | GGGCCA | 0.08952 | 0 | 2 | 0 |
| GP | GGCCCT | 0.06095 | 0 | 2 | 0 |
| GP | GGGCCG | 0.02667 | 0 | 2 | 0 |
| GP | GGACCC | 0.03048 | 0 | 2 | 0 |
| GP | GGACCT | 0.05714 | 1 | 2 | 0.5 |
| GP | GGACCG | 0.02857 | 0 | 2 | 0 |
| GP | GGACCA | 0.06286 | 0 | 2 | 0 |
| GQ | GGCCAG | 0.09595 | 0 | 1 | 0 |
| GQ | GGTCAA | 0.2836 | 1 | 1 | 1 |
| GQ | GGTCAG | 0.07676 | 0 | 1 | 0 |
| GQ | GGACAA | 0.1748 | 0 | 1 | 0 |
| GQ | GGGCAA | 0.08316 | 0 | 1 | 0 |
| GQ | GGACAG | 0.0597 | 0 | 1 | 0 |
| GQ | GGCCAA | 0.1962 | 0 | 1 | 0 |
| GQ | GGGCAG | 0.02985 | 0 | 1 | 0 |
| GR | GGCCGT | 0.03535 | 0 | 0 | 0 |
| GR | GGGCGA | 0.005051 | 0 | 0 | 0 |
| GR | GGGAGG | 0.02525 | 0 | 0 | 0 |
| GR | GGGAGA | 0.06734 | 0 | 0 | 0 |
| GR | GGGCGT | 0.01852 | 0 | 0 | 0 |
| GR | GGCCGG | 0.005051 | 0 | 0 | 0 |
| GR | GGGCGC | 0.005051 | 0 | 0 | 0 |
| GR | GGTAGA | 0.202 | 0 | 0 | 0 |
| GR | GGTAGG | 0.07071 | 0 | 0 | 0 |
| GR | GGACGA | 0.006734 | 0 | 0 | 0 |
| GR | GGACGC | 0.01515 | 0 | 0 | 0 |

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|----|---------|----------|---|---|--------|
| GR | GGACGG | 0.0101 | 0 | 0 | 0 |
| GR | GGTCGG | 0.008418 | 0 | 0 | 0 |
| GR | GGAAGG | 0.06734 | 0 | 0 | 0 |
| GR | GGAAGA | 0.1549 | 0 | 0 | 0 |
| GR | GGTCGT | 0.07071 | 0 | 0 | 0 |
| GR | GGCCGC | 0.01347 | 0 | 0 | 0 |
| GR | GGACGT | 0.03367 | 0 | 0 | 0 |
| GR | GGTCGA | 0.01852 | 0 | 0 | 0 |
| GR | GGCAGA | 0.07912 | 0 | 0 | 0 |
| GR | GGCCGA | 0.008418 | 0 | 0 | 0 |
| GR | GGTCGC | 0.02694 | 0 | 0 | 0 |
| GR | GGGCGG | 0.008418 | 0 | 0 | 0 |
| GR | GGCAGG | 0.04377 | 0 | 0 | 0 |
| GS | GGTTCA | 0.07961 | 1 | 3 | 0.3333 |
| GS | GGTTCC | 0.07143 | 1 | 3 | 0.3333 |
| GS | GGTTCT | 0.1287 | 0 | 3 | 0 |
| GS | GGTTCCG | 0.03125 | 0 | 3 | 0 |
| GS | GGTAGT | 0.06027 | 1 | 3 | 0.3333 |
| GS | GGGTCG | 0.01042 | 0 | 3 | 0 |
| GS | GGGTCC | 0.01563 | 0 | 3 | 0 |
| GS | GGGTCA | 0.01786 | 0 | 3 | 0 |
| GS | GGGTCT | 0.03199 | 0 | 3 | 0 |
| GS | GGTAGC | 0.04836 | 0 | 3 | 0 |
| GS | GGCTCT | 0.0625 | 0 | 3 | 0 |
| GS | GGATCT | 0.05729 | 0 | 3 | 0 |
| GS | GGGAGT | 0.01786 | 0 | 3 | 0 |
| GS | GGCAGT | 0.04464 | 0 | 3 | 0 |
| GS | GGCTCA | 0.03497 | 0 | 3 | 0 |
| GS | GGATCG | 0.03274 | 0 | 3 | 0 |
| GS | GGATCC | 0.0253 | 0 | 3 | 0 |
| GS | GGAAGC | 0.03646 | 0 | 3 | 0 |
| GS | GGAAGT | 0.05952 | 0 | 3 | 0 |
| GS | GGATCA | 0.04613 | 0 | 3 | 0 |
| GS | GGCTCC | 0.03869 | 0 | 3 | 0 |
| GS | GGCAGC | 0.02232 | 0 | 3 | 0 |
| GS | GGGAGC | 0.0119 | 0 | 3 | 0 |
| GS | GGCTCG | 0.01414 | 0 | 3 | 0 |
| GT | GGTACG | 0.04704 | 0 | 0 | 0 |
| GT | GGGACT | 0.03619 | 0 | 0 | 0 |
| GT | GGGACG | 0.0193 | 0 | 0 | 0 |
| GT | GGAACT | 0.07961 | 0 | 0 | 0 |
| GT | GGAACG | 0.04584 | 0 | 0 | 0 |
| GT | GGAACA | 0.09168 | 0 | 0 | 0 |
| GT | GGAACC | 0.03016 | 0 | 0 | 0 |
| GT | GGGACC | 0.01689 | 0 | 0 | 0 |
| GT | GGGACA | 0.03619 | 0 | 0 | 0 |
| GT | GGCACT | 0.08685 | 0 | 0 | 0 |
| GT | GGTACA | 0.117 | 0 | 0 | 0 |
| GT | GGCACG | 0.0193 | 0 | 0 | 0 |
| GT | GGCACC | 0.04946 | 0 | 0 | 0 |
| GT | GGTACT | 0.1653 | 0 | 0 | 0 |

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|----|---------|---------|---|---|---|
| GT | GGCACA | 0.06514 | 0 | 0 | 0 |
| GT | GGTACC | 0.09409 | 0 | 0 | 0 |
| GV | GGCGTA | 0.0315 | 0 | 0 | 0 |
| GV | GGCGTT | 0.06524 | 0 | 0 | 0 |
| GV | GGGGTA | 0.0225 | 0 | 0 | 0 |
| GV | GGGGTC | 0.01012 | 0 | 0 | 0 |
| GV | GGGGTG | 0.01912 | 0 | 0 | 0 |
| GV | GGCGTG | 0.01912 | 0 | 0 | 0 |
| GV | GGCGTC | 0.03262 | 0 | 0 | 0 |
| GV | GGAGTA | 0.03712 | 0 | 0 | 0 |
| GV | GGAGTG | 0.02812 | 0 | 0 | 0 |
| GV | GGAGTT | 0.06187 | 0 | 0 | 0 |
| GV | GGGGTT | 0.027 | 0 | 0 | 0 |
| GV | GGAGTC | 0.03037 | 0 | 0 | 0 |
| GV | GGTGTC | 0.1384 | 0 | 0 | 0 |
| GV | GGTGTT | 0.2621 | 0 | 0 | 0 |
| GV | GGTGTA | 0.1159 | 0 | 0 | 0 |
| GV | GGTG TG | 0.09899 | 0 | 0 | 0 |
| GW | GGTTGG | 0.4483 | 0 | 0 | 0 |
| GW | GGATGG | 0.202 | 0 | 0 | 0 |
| GW | GGCTGG | 0.2365 | 0 | 0 | 0 |
| GW | GGGTGG | 0.1133 | 0 | 0 | 0 |
| GY | GGTTAC | 0.1889 | 0 | 0 | 0 |
| GY | GGTTAT | 0.2462 | 0 | 0 | 0 |
| GY | GGGTAC | 0.03435 | 0 | 0 | 0 |
| GY | GGATAC | 0.07443 | 0 | 0 | 0 |
| GY | GGATAT | 0.1737 | 0 | 0 | 0 |
| GY | GGGTAT | 0.06298 | 0 | 0 | 0 |
| GY | GGCTAC | 0.09733 | 0 | 0 | 0 |
| GY | GGCTAT | 0.1221 | 0 | 0 | 0 |
| H* | CACTAG | 0 | 0 | 0 | 0 |
| H* | CACTAA | 0.09524 | 0 | 0 | 0 |
| H* | CATTGA | 0.09524 | 0 | 0 | 0 |
| H* | CATTAG | 0.4762 | 0 | 0 | 0 |
| H* | CATTAA | 0.2857 | 0 | 0 | 0 |
| H* | CACTGA | 0.04762 | 0 | 0 | 0 |
| HA | CATGCC | 0.1829 | 0 | 0 | 0 |
| HA | CATGCA | 0.1921 | 0 | 0 | 0 |
| HA | CACGCG | 0.03354 | 0 | 0 | 0 |
| HA | CACGCT | 0.1189 | 0 | 0 | 0 |
| HA | CATGCG | 0.06707 | 0 | 0 | 0 |
| HA | CATGCT | 0.2866 | 0 | 0 | 0 |
| HA | CACGCA | 0.04878 | 0 | 0 | 0 |
| HA | CACGCC | 0.07012 | 0 | 0 | 0 |
| HC | CACTGT | 0.2418 | 0 | 0 | 0 |
| HC | CATTGT | 0.4286 | 0 | 0 | 0 |
| HC | CATTGC | 0.2747 | 0 | 0 | 0 |
| HC | CACTGC | 0.05495 | 0 | 0 | 0 |
| HD | CATGAT | 0.368 | 0 | 0 | 0 |
| HD | CATGAC | 0.2344 | 0 | 0 | 0 |
| HD | CACGAC | 0.1662 | 0 | 0 | 0 |

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|----|---------|---------|---|---|-----|
| HD | CACGAT | 0.2315 | 0 | 0 | 0 |
| HE | CACGAG | 0.07507 | 0 | 0 | 0 |
| HE | CACGAA | 0.2413 | 0 | 0 | 0 |
| HE | CATGAA | 0.4879 | 0 | 0 | 0 |
| HE | CATGAG | 0.1957 | 0 | 0 | 0 |
| HF | CACTTC | 0.1316 | 0 | 0 | 0 |
| HF | CATTTT | 0.3647 | 0 | 0 | 0 |
| HF | CATTTTC | 0.3045 | 0 | 0 | 0 |
| HF | CACTTT | 0.1992 | 0 | 0 | 0 |
| HG | CATGGT | 0.3187 | 0 | 0 | 0 |
| HG | CACGGT | 0.1462 | 0 | 0 | 0 |
| HG | CATGGG | 0.08772 | 0 | 0 | 0 |
| HG | CATGGA | 0.1462 | 0 | 0 | 0 |
| HG | CACGGC | 0.06725 | 0 | 0 | 0 |
| HG | CATGGC | 0.1374 | 0 | 0 | 0 |
| HG | CACGGG | 0.02632 | 0 | 0 | 0 |
| HG | CACGGA | 0.07018 | 0 | 0 | 0 |
| HH | CATCAC | 0.234 | 0 | 0 | 0 |
| HH | CATCAT | 0.5053 | 0 | 0 | 0 |
| HH | CACCAC | 0.09574 | 0 | 0 | 0 |
| HH | CACCAT | 0.1649 | 0 | 0 | 0 |
| HI | CACATA | 0.07436 | 0 | 0 | 0 |
| HI | CATATA | 0.1974 | 0 | 0 | 0 |
| HI | CACATT | 0.1744 | 0 | 0 | 0 |
| HI | CACATC | 0.07436 | 0 | 0 | 0 |
| HI | CATATC | 0.1846 | 0 | 0 | 0 |
| HI | CATATT | 0.2949 | 0 | 0 | 0 |
| HK | CACAAA | 0.2582 | 0 | 0 | 0 |
| HK | CATAAA | 0.3424 | 0 | 0 | 0 |
| HK | CACAAG | 0.2092 | 0 | 0 | 0 |
| HK | CATAAG | 0.1902 | 0 | 0 | 0 |
| HL | CACCTT | 0.05431 | 0 | 2 | 0 |
| HL | CATTTA | 0.2316 | 1 | 2 | 0.5 |
| HL | CACCTC | 0.02556 | 0 | 2 | 0 |
| HL | CACCTA | 0.03994 | 0 | 2 | 0 |
| HL | CATTTG | 0.2109 | 0 | 2 | 0 |
| HL | CACCTG | 0.03355 | 0 | 2 | 0 |
| HL | CACTTA | 0.07508 | 1 | 2 | 0.5 |
| HL | CATCTG | 0.03994 | 0 | 2 | 0 |
| HL | CATCTC | 0.04473 | 0 | 2 | 0 |
| HL | CATCTA | 0.07987 | 0 | 2 | 0 |
| HL | CATCTT | 0.09425 | 0 | 2 | 0 |
| HL | CACTTG | 0.07029 | 0 | 2 | 0 |
| HM | CACATG | 0.3922 | 0 | 0 | 0 |
| HM | CATATG | 0.6078 | 0 | 0 | 0 |
| HN | CATAAC | 0.2132 | 0 | 0 | 0 |
| HN | CATAAT | 0.3423 | 0 | 0 | 0 |
| HN | CACAAC | 0.1742 | 0 | 0 | 0 |
| HN | CACAAT | 0.2703 | 0 | 0 | 0 |
| HP | CACCCG | 0.02989 | 0 | 0 | 0 |
| HP | CACCCC | 0.02989 | 0 | 0 | 0 |

| | | | | | |
|----|--------|----------|---|---|---|
| HP | CACCCT | 0.0625 | 0 | 0 | 0 |
| HP | CATCCG | 0.1332 | 0 | 0 | 0 |
| HP | CATCCC | 0.09783 | 0 | 0 | 0 |
| HP | CATCCT | 0.2473 | 0 | 0 | 0 |
| HP | CATCCA | 0.2418 | 0 | 0 | 0 |
| HP | CACCCA | 0.1576 | 0 | 0 | 0 |
| HQ | CATCAG | 0.1841 | 0 | 0 | 0 |
| HQ | CATCAA | 0.4603 | 0 | 0 | 0 |
| HQ | CACCAG | 0.08368 | 0 | 0 | 0 |
| HQ | CACCAA | 0.272 | 0 | 0 | 0 |
| HR | CATCGA | 0.1 | 0 | 0 | 0 |
| HR | CACCGT | 0.06333 | 0 | 0 | 0 |
| HR | CATCGG | 0.01667 | 0 | 0 | 0 |
| HR | CACAGA | 0.1767 | 0 | 0 | 0 |
| HR | CATAGA | 0.2633 | 0 | 0 | 0 |
| HR | CACCGG | 0.02333 | 0 | 0 | 0 |
| HR | CATAGG | 0.1 | 0 | 0 | 0 |
| HR | CACCGC | 0.006667 | 0 | 0 | 0 |
| HR | CATCGC | 0.05 | 0 | 0 | 0 |
| HR | CACAGG | 0.06 | 0 | 0 | 0 |
| HR | CATCGT | 0.1267 | 0 | 0 | 0 |
| HR | CACCGA | 0.01333 | 0 | 0 | 0 |
| HS | CATAGT | 0.06998 | 0 | 0 | 0 |
| HS | CATTCT | 0.1786 | 0 | 0 | 0 |
| HS | CATAGC | 0.05341 | 0 | 0 | 0 |
| HS | CATTCG | 0.08656 | 0 | 0 | 0 |
| HS | CATTCC | 0.1013 | 0 | 0 | 0 |
| HS | CACAGC | 0.05157 | 0 | 0 | 0 |
| HS | CACAGT | 0.05157 | 0 | 0 | 0 |
| HS | CACTCG | 0.0221 | 0 | 0 | 0 |
| HS | CACTCA | 0.08471 | 0 | 0 | 0 |
| HS | CACTCT | 0.09576 | 0 | 0 | 0 |
| HS | CATTCA | 0.1547 | 0 | 0 | 0 |
| HS | CACTCC | 0.04972 | 0 | 0 | 0 |
| HT | CACACC | 0.07099 | 0 | 0 | 0 |
| HT | CACACG | 0.03086 | 0 | 0 | 0 |
| HT | CATACA | 0.216 | 0 | 0 | 0 |
| HT | CATACG | 0.0679 | 0 | 0 | 0 |
| HT | CACACT | 0.1728 | 0 | 0 | 0 |
| HT | CACACA | 0.1512 | 0 | 0 | 0 |
| HT | CATACT | 0.2068 | 0 | 0 | 0 |
| HT | CATACC | 0.08333 | 0 | 0 | 0 |
| HV | CATGTA | 0.1656 | 0 | 0 | 0 |
| HV | CATGTG | 0.1401 | 0 | 0 | 0 |
| HV | CATGTT | 0.2166 | 0 | 0 | 0 |
| HV | CATGTC | 0.1338 | 0 | 0 | 0 |
| HV | CACGTA | 0.09236 | 0 | 0 | 0 |
| HV | CACGTC | 0.07962 | 0 | 0 | 0 |
| HV | CACGTG | 0.05414 | 0 | 0 | 0 |
| HV | CACGTT | 0.1178 | 0 | 0 | 0 |
| HW | CACTGG | 0.3368 | 0 | 0 | 0 |

| | | | | | |
|----|--------|---------|---|---|---|
| HW | CATTGG | 0.6632 | 0 | 0 | 0 |
| HY | CATTAC | 0.2488 | 0 | 0 | 0 |
| HY | CACTAC | 0.1596 | 0 | 0 | 0 |
| HY | CACTAT | 0.1878 | 0 | 0 | 0 |
| HY | CATTAT | 0.4038 | 0 | 0 | 0 |
| I* | ATTTAG | 0.1081 | 0 | 0 | 0 |
| I* | ATTTAA | 0.2703 | 0 | 0 | 0 |
| I* | ATCTGA | 0.02703 | 0 | 0 | 0 |
| I* | ATCTAG | 0.02703 | 0 | 0 | 0 |
| I* | ATTTGA | 0.1351 | 0 | 0 | 0 |
| I* | ATCTAA | 0.08108 | 0 | 0 | 0 |
| I* | ATATAA | 0.1892 | 0 | 0 | 0 |
| I* | ATATAG | 0.1081 | 0 | 0 | 0 |
| I* | ATATGA | 0.05405 | 0 | 0 | 0 |
| IA | ATTGCC | 0.1384 | 0 | 0 | 0 |
| IA | ATAGCA | 0.06591 | 0 | 0 | 0 |
| IA | ATTGCA | 0.1638 | 0 | 0 | 0 |
| IA | ATTGCG | 0.07533 | 0 | 0 | 0 |
| IA | ATTGCT | 0.209 | 0 | 0 | 0 |
| IA | ATAGCC | 0.04331 | 0 | 0 | 0 |
| IA | ATCGCT | 0.06591 | 0 | 0 | 0 |
| IA | ATCGCA | 0.04049 | 0 | 0 | 0 |
| IA | ATAGCG | 0.0452 | 0 | 0 | 0 |
| IA | ATCGCC | 0.0452 | 0 | 0 | 0 |
| IA | ATCGCG | 0.02919 | 0 | 0 | 0 |
| IA | ATAGCT | 0.07815 | 0 | 0 | 0 |
| IC | ATATGT | 0.1626 | 0 | 1 | 0 |
| IC | ATTTGC | 0.1903 | 0 | 1 | 0 |
| IC | ATATGC | 0.1073 | 0 | 1 | 0 |
| IC | ATTTGT | 0.3149 | 1 | 1 | 1 |
| IC | ATCTGC | 0.1003 | 0 | 1 | 0 |
| IC | ATCTGT | 0.1246 | 0 | 1 | 0 |
| ID | ATTGAC | 0.1769 | 0 | 0 | 0 |
| ID | ATTGAT | 0.3123 | 0 | 0 | 0 |
| ID | ATAGAT | 0.1599 | 0 | 0 | 0 |
| ID | ATCGAC | 0.09407 | 0 | 0 | 0 |
| ID | ATCGAT | 0.1627 | 0 | 0 | 0 |
| ID | ATAGAC | 0.09407 | 0 | 0 | 0 |
| IE | ATCGAG | 0.07253 | 0 | 0 | 0 |
| IE | ATCGAA | 0.1496 | 0 | 0 | 0 |
| IE | ATTGAG | 0.1342 | 0 | 0 | 0 |
| IE | ATTGAA | 0.3898 | 0 | 0 | 0 |
| IE | ATAGAG | 0.08885 | 0 | 0 | 0 |
| IE | ATAGAA | 0.165 | 0 | 0 | 0 |
| IF | ATATTT | 0.2067 | 0 | 0 | 0 |
| IF | ATCTTC | 0.09797 | 0 | 0 | 0 |
| IF | ATATTC | 0.1099 | 0 | 0 | 0 |
| IF | ATTTTT | 0.2581 | 0 | 0 | 0 |
| IF | ATCTTT | 0.1219 | 0 | 0 | 0 |
| IF | ATTTTC | 0.2055 | 0 | 0 | 0 |
| IG | ATCGGC | 0.04091 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| IG | ATCGGA | 0.05 | 0 | 0 | 0 |
| IG | ATTGGA | 0.1068 | 0 | 0 | 0 |
| IG | ATTGGC | 0.09205 | 0 | 0 | 0 |
| IG | ATCGGG | 0.02159 | 0 | 0 | 0 |
| IG | ATAGGT | 0.07159 | 0 | 0 | 0 |
| IG | ATAGGC | 0.04205 | 0 | 0 | 0 |
| IG | ATAGGA | 0.06477 | 0 | 0 | 0 |
| IG | ATTGGG | 0.07955 | 0 | 0 | 0 |
| IG | ATAGGG | 0.03068 | 0 | 0 | 0 |
| IG | ATCGGT | 0.1136 | 0 | 0 | 0 |
| IG | ATTGGT | 0.2864 | 0 | 0 | 0 |
| IH | ATTCAT | 0.3411 | 0 | 0 | 0 |
| IH | ATTCAC | 0.1833 | 0 | 0 | 0 |
| IH | ATCCAC | 0.058 | 0 | 0 | 0 |
| IH | ATACAC | 0.09977 | 0 | 0 | 0 |
| IH | ATCCAT | 0.1392 | 0 | 0 | 0 |
| IH | ATACAT | 0.1787 | 0 | 0 | 0 |
| II | ATTATA | 0.114 | 0 | 0 | 0 |
| II | ATTATC | 0.1148 | 0 | 0 | 0 |
| II | ATTATT | 0.2108 | 0 | 0 | 0 |
| II | ATAATA | 0.1037 | 0 | 0 | 0 |
| II | ATAATT | 0.102 | 0 | 0 | 0 |
| II | ATAATC | 0.06255 | 0 | 0 | 0 |
| II | ATCATC | 0.09597 | 0 | 0 | 0 |
| II | ATCATT | 0.1285 | 0 | 0 | 0 |
| II | ATCATA | 0.06769 | 0 | 0 | 0 |
| IK | ATCAAG | 0.1673 | 0 | 0 | 0 |
| IK | ATCAAA | 0.2411 | 0 | 0 | 0 |
| IK | ATAAAA | 0.1629 | 0 | 0 | 0 |
| IK | ATAAAG | 0.1183 | 0 | 0 | 0 |
| IK | ATTAAG | 0.1885 | 0 | 0 | 0 |
| IK | ATTAAG | 0.122 | 0 | 0 | 0 |
| IL | ATCCTA | 0.03985 | 0 | 0 | 0 |
| IL | ATCCTT | 0.03439 | 0 | 0 | 0 |
| IL | ATCTTG | 0.06114 | 0 | 0 | 0 |
| IL | ATATTG | 0.07151 | 0 | 0 | 0 |
| IL | ATCTTA | 0.05622 | 0 | 0 | 0 |
| IL | ATCCTC | 0.01528 | 0 | 0 | 0 |
| IL | ATATTA | 0.07806 | 0 | 0 | 0 |
| IL | ATCCTG | 0.02293 | 0 | 0 | 0 |
| IL | ATACTC | 0.0131 | 0 | 0 | 0 |
| IL | ATTCTT | 0.07751 | 0 | 0 | 0 |
| IL | ATTCTG | 0.04148 | 0 | 0 | 0 |
| IL | ATTCTC | 0.02511 | 0 | 0 | 0 |
| IL | ATACTA | 0.04913 | 0 | 0 | 0 |
| IL | ATTTTA | 0.1605 | 0 | 0 | 0 |
| IL | ATACTT | 0.0393 | 0 | 0 | 0 |
| IL | ATTTTG | 0.1157 | 0 | 0 | 0 |
| IL | ATACTG | 0.03603 | 0 | 0 | 0 |
| IL | ATTCTA | 0.06277 | 0 | 0 | 0 |
| IM | ATAATG | 0.2627 | 0 | 0 | 0 |

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|----|---------|---------|---|---|---|
| IM | ATCATG | 0.3731 | 0 | 0 | 0 |
| IM | ATTATG | 0.3642 | 0 | 0 | 0 |
| IN | ATTAAC | 0.1354 | 0 | 0 | 0 |
| IN | ATAAAC | 0.1371 | 0 | 0 | 0 |
| IN | ATAAAT | 0.1939 | 0 | 0 | 0 |
| IN | ATCAAC | 0.138 | 0 | 0 | 0 |
| IN | ATTAAT | 0.193 | 0 | 0 | 0 |
| IN | ATCAAT | 0.2026 | 0 | 0 | 0 |
| IP | ATCCCG | 0.01668 | 0 | 0 | 0 |
| IP | ATCCCT | 0.06569 | 0 | 0 | 0 |
| IP | ATCCCC | 0.01773 | 0 | 0 | 0 |
| IP | ATCCCA | 0.08446 | 0 | 0 | 0 |
| IP | ATTCCA | 0.2013 | 0 | 0 | 0 |
| IP | ATACCG | 0.05527 | 0 | 0 | 0 |
| IP | ATACCA | 0.1147 | 0 | 0 | 0 |
| IP | ATTCCT | 0.1564 | 0 | 0 | 0 |
| IP | ATTCCG | 0.08446 | 0 | 0 | 0 |
| IP | ATACCT | 0.08968 | 0 | 0 | 0 |
| IP | ATTCCC | 0.07091 | 0 | 0 | 0 |
| IP | ATACCC | 0.04275 | 0 | 0 | 0 |
| IQ | ATCCAA | 0.1615 | 0 | 0 | 0 |
| IQ | ATACAA | 0.1572 | 0 | 0 | 0 |
| IQ | ATCCAG | 0.08499 | 0 | 0 | 0 |
| IQ | ATACAG | 0.08074 | 0 | 0 | 0 |
| IQ | ATTCAG | 0.1487 | 0 | 0 | 0 |
| IQ | ATTCAA | 0.3669 | 0 | 0 | 0 |
| IR | ATTCGG | 0.01381 | 0 | 0 | 0 |
| IR | ATCAGA | 0.1496 | 0 | 0 | 0 |
| IR | ATTCGT | 0.05754 | 0 | 0 | 0 |
| IR | ATTCGC | 0.02301 | 0 | 0 | 0 |
| IR | ATTCGA | 0.03222 | 0 | 0 | 0 |
| IR | ATACGG | 0.02417 | 0 | 0 | 0 |
| IR | ATACGC | 0.02071 | 0 | 0 | 0 |
| IR | ATACGA | 0.02992 | 0 | 0 | 0 |
| IR | ATAAGG | 0.07135 | 0 | 0 | 0 |
| IR | ATCAGG | 0.06559 | 0 | 0 | 0 |
| IR | ATTAGA | 0.1807 | 0 | 0 | 0 |
| IR | ATCCGA | 0.01151 | 0 | 0 | 0 |
| IR | ATCCGT | 0.03797 | 0 | 0 | 0 |
| IR | ATACGT | 0.03567 | 0 | 0 | 0 |
| IR | ATTAGG | 0.06789 | 0 | 0 | 0 |
| IR | ATCCGC | 0.01726 | 0 | 0 | 0 |
| IR | ATAAGA | 0.1507 | 0 | 0 | 0 |
| IR | ATCCGG | 0.01036 | 0 | 0 | 0 |
| IS | ATTAGC | 0.02796 | 0 | 0 | 0 |
| IS | ATTAGT | 0.04316 | 0 | 0 | 0 |
| IS | ATAAGT | 0.04681 | 0 | 0 | 0 |
| IS | ATTTCT | 0.1271 | 0 | 0 | 0 |
| IS | ATTTCCG | 0.03951 | 0 | 0 | 0 |
| IS | ATTTCC | 0.08936 | 0 | 0 | 0 |
| IS | ATAAGC | 0.02371 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| IS | ATATCA | 0.08511 | 0 | 0 | 0 |
| IS | ATTTCA | 0.09848 | 0 | 0 | 0 |
| IS | ATCAGT | 0.04681 | 0 | 0 | 0 |
| IS | ATCTCT | 0.05106 | 0 | 0 | 0 |
| IS | ATCTCG | 0.01945 | 0 | 0 | 0 |
| IS | ATCTCC | 0.03404 | 0 | 0 | 0 |
| IS | ATCTCA | 0.04802 | 0 | 0 | 0 |
| IS | ATATCT | 0.0924 | 0 | 0 | 0 |
| IS | ATATCG | 0.0462 | 0 | 0 | 0 |
| IS | ATCAGC | 0.03222 | 0 | 0 | 0 |
| IS | ATATCC | 0.04863 | 0 | 0 | 0 |
| IT | ATAACG | 0.03886 | 0 | 0 | 0 |
| IT | ATAACT | 0.09479 | 0 | 0 | 0 |
| IT | ATCACT | 0.1422 | 0 | 0 | 0 |
| IT | ATCACC | 0.06445 | 0 | 0 | 0 |
| IT | ATAACA | 0.11 | 0 | 0 | 0 |
| IT | ATTACA | 0.1128 | 0 | 0 | 0 |
| IT | ATTACT | 0.1403 | 0 | 0 | 0 |
| IT | ATTACG | 0.04645 | 0 | 0 | 0 |
| IT | ATCACA | 0.09005 | 0 | 0 | 0 |
| IT | ATAACC | 0.04645 | 0 | 0 | 0 |
| IT | ATCACG | 0.03602 | 0 | 0 | 0 |
| IT | ATTACC | 0.07773 | 0 | 0 | 0 |
| IV | ATTGTG | 0.1382 | 0 | 1 | 0 |
| IV | ATTGTT | 0.2265 | 1 | 1 | 1 |
| IV | ATTGTA | 0.1147 | 0 | 1 | 0 |
| IV | ATTGTC | 0.1127 | 0 | 1 | 0 |
| IV | ATCGTT | 0.06667 | 0 | 1 | 0 |
| IV | ATAGTT | 0.07745 | 0 | 1 | 0 |
| IV | ATCGTA | 0.04314 | 0 | 1 | 0 |
| IV | ATAGTG | 0.05 | 0 | 1 | 0 |
| IV | ATAGTC | 0.03824 | 0 | 1 | 0 |
| IV | ATCGTC | 0.05098 | 0 | 1 | 0 |
| IV | ATAGTA | 0.05392 | 0 | 1 | 0 |
| IV | ATCGTG | 0.02745 | 0 | 1 | 0 |
| IW | ATTTGG | 0.4115 | 0 | 0 | 0 |
| IW | ATCTGG | 0.1483 | 0 | 0 | 0 |
| IW | ATATGG | 0.4402 | 0 | 0 | 0 |
| IY | ATCTAC | 0.1119 | 0 | 0 | 0 |
| IY | ATATAC | 0.1463 | 0 | 0 | 0 |
| IY | ATATAT | 0.222 | 0 | 0 | 0 |
| IY | ATTTAT | 0.2565 | 0 | 0 | 0 |
| IY | ATCTAT | 0.09811 | 0 | 0 | 0 |
| IY | ATTTAC | 0.1652 | 0 | 0 | 0 |
| K* | AAGTAA | 0.08974 | 0 | 0 | 0 |
| K* | AAGTGA | 0.05128 | 0 | 0 | 0 |
| K* | AAATAA | 0.359 | 0 | 0 | 0 |
| K* | AAATGA | 0.1923 | 0 | 0 | 0 |
| K* | AAGTAG | 0.05128 | 0 | 0 | 0 |
| K* | AAATAG | 0.2564 | 0 | 0 | 0 |
| KA | AAAGCG | 0.05421 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| KA | AAAGCA | 0.1551 | 0 | 0 | 0 |
| KA | AAAGCC | 0.1037 | 0 | 0 | 0 |
| KA | AAAGCT | 0.1654 | 0 | 0 | 0 |
| KA | AAGGCT | 0.2056 | 0 | 0 | 0 |
| KA | AAGGCC | 0.1262 | 0 | 0 | 0 |
| KA | AAGGCG | 0.06168 | 0 | 0 | 0 |
| KA | AAGGCA | 0.128 | 0 | 0 | 0 |
| KC | AAATGT | 0.4286 | 0 | 0 | 0 |
| KC | AAGTGT | 0.2166 | 0 | 0 | 0 |
| KC | AAGTGC | 0.1244 | 0 | 0 | 0 |
| KC | AAATGC | 0.2304 | 0 | 0 | 0 |
| KD | AAGGAT | 0.2695 | 0 | 0 | 0 |
| KD | AAAGAT | 0.3704 | 0 | 0 | 0 |
| KD | AAAGAC | 0.1883 | 0 | 0 | 0 |
| KD | AAGGAC | 0.1718 | 0 | 0 | 0 |
| KE | AAGGAG | 0.1435 | 0 | 0 | 0 |
| KE | AAAGAG | 0.1879 | 0 | 0 | 0 |
| KE | AAGGAA | 0.3164 | 0 | 0 | 0 |
| KE | AAAGAA | 0.3523 | 0 | 0 | 0 |
| KF | AAATTC | 0.245 | 0 | 0 | 0 |
| KF | AAGTTC | 0.1564 | 0 | 0 | 0 |
| KF | AAATTT | 0.3755 | 0 | 0 | 0 |
| KF | AAGTTT | 0.2231 | 0 | 0 | 0 |
| KG | AAGGGA | 0.1095 | 0 | 0 | 0 |
| KG | AAAGGG | 0.07267 | 0 | 0 | 0 |
| KG | AAAGGC | 0.09978 | 0 | 0 | 0 |
| KG | AAGGGG | 0.04772 | 0 | 0 | 0 |
| KG | AAGGGT | 0.2137 | 0 | 0 | 0 |
| KG | AAAGGT | 0.2332 | 0 | 0 | 0 |
| KG | AAAGGA | 0.1226 | 0 | 0 | 0 |
| KG | AAGGGC | 0.1009 | 0 | 0 | 0 |
| KH | AAGCAC | 0.1995 | 0 | 0 | 0 |
| KH | AAACAC | 0.1731 | 0 | 0 | 0 |
| KH | AAGCAT | 0.3173 | 0 | 0 | 0 |
| KH | AAACAT | 0.3101 | 0 | 0 | 0 |
| KI | AAGATT | 0.1613 | 0 | 0 | 0 |
| KI | AAGATA | 0.09921 | 0 | 0 | 0 |
| KI | AAGATC | 0.08922 | 0 | 0 | 0 |
| KI | AAAATA | 0.2084 | 0 | 0 | 0 |
| KI | AAAATC | 0.1627 | 0 | 0 | 0 |
| KI | AAAATT | 0.2791 | 0 | 0 | 0 |
| KK | AAAAAG | 0.2182 | 0 | 0 | 0 |
| KK | AAAAAA | 0.2634 | 0 | 0 | 0 |
| KK | AAGAAG | 0.2265 | 0 | 0 | 0 |
| KK | AAGAAA | 0.2919 | 0 | 0 | 0 |
| KL | AAGTTA | 0.08243 | 0 | 0 | 0 |
| KL | AAATTG | 0.1421 | 0 | 0 | 0 |
| KL | AAATTA | 0.1691 | 0 | 0 | 0 |
| KL | AAACTA | 0.1137 | 0 | 0 | 0 |
| KL | AAGCTC | 0.01611 | 0 | 0 | 0 |
| KL | AAGCTA | 0.07106 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| KL | AAGTTG | 0.09948 | 0 | 0 | 0 |
| KL | AAACTT | 0.08243 | 0 | 0 | 0 |
| KL | AAGCTG | 0.0559 | 0 | 0 | 0 |
| KL | AAGCTT | 0.05353 | 0 | 0 | 0 |
| KL | AAACTC | 0.02984 | 0 | 0 | 0 |
| KL | AAACTG | 0.08432 | 0 | 0 | 0 |
| KM | AAAATG | 0.6243 | 0 | 0 | 0 |
| KM | AAGATG | 0.3757 | 0 | 0 | 0 |
| KN | AAAAAC | 0.2231 | 0 | 0 | 0 |
| KN | AAGAAT | 0.2633 | 0 | 0 | 0 |
| KN | AAAAAT | 0.3536 | 0 | 0 | 0 |
| KN | AAGAAC | 0.1601 | 0 | 0 | 0 |
| KP | AAGCCA | 0.164 | 0 | 0 | 0 |
| KP | AAGCCG | 0.0485 | 0 | 0 | 0 |
| KP | AAGCCT | 0.1305 | 0 | 0 | 0 |
| KP | AAGCCC | 0.0485 | 0 | 0 | 0 |
| KP | AAACCT | 0.1882 | 0 | 0 | 0 |
| KP | AAACCG | 0.08661 | 0 | 0 | 0 |
| KP | AAACCA | 0.246 | 0 | 0 | 0 |
| KP | AAACCC | 0.08776 | 0 | 0 | 0 |
| KQ | AAACAA | 0.3606 | 0 | 0 | 0 |
| KQ | AAGCAG | 0.1445 | 0 | 0 | 0 |
| KQ | AAACAG | 0.196 | 0 | 0 | 0 |
| KQ | AAGCAA | 0.299 | 0 | 0 | 0 |
| KR | AAACGC | 0.02172 | 0 | 1 | 0 |
| KR | AAACGG | 0.02423 | 0 | 1 | 0 |
| KR | AAGCGT | 0.03843 | 0 | 1 | 0 |
| KR | AAGCGC | 0.02005 | 0 | 1 | 0 |
| KR | AAAAGA | 0.3016 | 1 | 1 | 1 |
| KR | AAGAGG | 0.1078 | 0 | 1 | 0 |
| KR | AAAAGG | 0.1546 | 0 | 1 | 0 |
| KR | AAGCGA | 0.02005 | 0 | 1 | 0 |
| KR | AAACGT | 0.04845 | 0 | 1 | 0 |
| KR | AAGCGG | 0.0117 | 0 | 1 | 0 |
| KR | AAACGA | 0.04595 | 0 | 1 | 0 |
| KR | AAGAGA | 0.2055 | 0 | 1 | 0 |
| KS | AAGAGC | 0.05109 | 0 | 0 | 0 |
| KS | AAAAGT | 0.1405 | 0 | 0 | 0 |
| KS | AAGTCT | 0.07786 | 0 | 0 | 0 |
| KS | AAGTCG | 0.02251 | 0 | 0 | 0 |
| KS | AAAAGC | 0.09063 | 0 | 0 | 0 |
| KS | AAATCG | 0.06326 | 0 | 0 | 0 |
| KS | AAATCT | 0.1569 | 0 | 0 | 0 |
| KS | AAGTCA | 0.06387 | 0 | 0 | 0 |
| KS | AAATCA | 0.1381 | 0 | 0 | 0 |
| KS | AAGAGT | 0.06022 | 0 | 0 | 0 |
| KS | AAGTCC | 0.05049 | 0 | 0 | 0 |
| KS | AAATCC | 0.08455 | 0 | 0 | 0 |
| KT | AAGACC | 0.07192 | 0 | 1 | 0 |
| KT | AAAACG | 0.08818 | 0 | 1 | 0 |
| KT | AAAACC | 0.1096 | 0 | 1 | 0 |

| | | | | | |
|----|--------|---------|---|---|---|
| KT | AAAAC | 0.1832 | 0 | 1 | 0 |
| KT | AAAACA | 0.2295 | 1 | 1 | 1 |
| KT | AAGACT | 0.1241 | 0 | 1 | 0 |
| KT | AAGACG | 0.07363 | 0 | 1 | 0 |
| KT | AAGACA | 0.1199 | 0 | 1 | 0 |
| KV | AAAGTC | 0.1238 | 0 | 0 | 0 |
| KV | AAAGTG | 0.1103 | 0 | 0 | 0 |
| KV | AAAGTT | 0.2409 | 0 | 0 | 0 |
| KV | AAAGTA | 0.1349 | 0 | 0 | 0 |
| KV | AAGGTC | 0.09754 | 0 | 0 | 0 |
| KV | AAGGTA | 0.08058 | 0 | 0 | 0 |
| KV | AAGGTT | 0.1535 | 0 | 0 | 0 |
| KV | AAGGTG | 0.05852 | 0 | 0 | 0 |
| KW | AAGTGG | 0.2767 | 0 | 0 | 0 |
| KW | AAATGG | 0.7233 | 0 | 0 | 0 |
| KY | AAATAT | 0.3462 | 0 | 0 | 0 |
| KY | AAATAC | 0.2777 | 0 | 0 | 0 |
| KY | AAGTAT | 0.1968 | 0 | 0 | 0 |
| KY | AAGTAC | 0.1793 | 0 | 0 | 0 |
| L* | CTCTAA | 0.03226 | 0 | 0 | 0 |
| L* | CTTTAA | 0.01613 | 0 | 0 | 0 |
| L* | CTATAG | 0.03226 | 0 | 0 | 0 |
| L* | CTCTGA | 0 | 0 | 0 | 0 |
| L* | TTATGA | 0.08065 | 0 | 0 | 0 |
| L* | TTATAA | 0.129 | 0 | 0 | 0 |
| L* | CTATGA | 0 | 0 | 0 | 0 |
| L* | TTATAG | 0.1129 | 0 | 0 | 0 |
| L* | CTTTGA | 0.09677 | 0 | 0 | 0 |
| L* | CTATAA | 0.06452 | 0 | 0 | 0 |
| L* | CTTTAG | 0.01613 | 0 | 0 | 0 |
| L* | CTCTAG | 0 | 0 | 0 | 0 |
| L* | CTGTAA | 0.06452 | 0 | 0 | 0 |
| L* | CTGTAG | 0 | 0 | 0 | 0 |
| L* | TTGTGA | 0.03226 | 0 | 0 | 0 |
| L* | TTGTAG | 0.03226 | 0 | 0 | 0 |
| L* | TTGTAA | 0.2419 | 0 | 0 | 0 |
| L* | CTGTGA | 0.04839 | 0 | 0 | 0 |
| LA | TTAGCC | 0.04394 | 0 | 3 | 0 |
| LA | TTAGCG | 0.02929 | 0 | 3 | 0 |
| LA | TTAGCA | 0.08256 | 0 | 3 | 0 |
| LA | CTTGCT | 0.04794 | 0 | 3 | 0 |
| LA | CTTGCG | 0.01931 | 0 | 3 | 0 |
| LA | TTAGCT | 0.0719 | 0 | 3 | 0 |
| LA | CTGGCT | 0.03462 | 0 | 3 | 0 |
| LA | CTGGCC | 0.03662 | 0 | 3 | 0 |
| LA | TTGGCG | 0.03395 | 0 | 3 | 0 |
| LA | CTGGCA | 0.03262 | 0 | 3 | 0 |
| LA | CTGGCG | 0.01864 | 0 | 3 | 0 |
| LA | CTCGCA | 0.01465 | 0 | 3 | 0 |
| LA | CTTGCC | 0.02597 | 0 | 3 | 0 |
| LA | CTTGCA | 0.04527 | 0 | 3 | 0 |

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|----|--------|---------|---|---|--------|
| LA | TTGGCA | 0.09454 | 1 | 3 | 0.3333 |
| LA | TTGGCC | 0.07257 | 1 | 3 | 0.3333 |
| LA | TTGGCT | 0.1305 | 1 | 3 | 0.3333 |
| LA | CTCGCG | 0.00466 | 0 | 3 | 0 |
| LA | CTCGCT | 0.01132 | 0 | 3 | 0 |
| LA | CTAGCC | 0.02597 | 0 | 3 | 0 |
| LA | CTAGCG | 0.01598 | 0 | 3 | 0 |
| LA | CTAGCT | 0.05459 | 0 | 3 | 0 |
| LA | CTCGCC | 0.01065 | 0 | 3 | 0 |
| LA | CTAGCA | 0.04194 | 0 | 3 | 0 |
| LC | CTCTGC | 0.03409 | 0 | 1 | 0 |
| LC | CTCTGT | 0.06818 | 0 | 1 | 0 |
| LC | CTGTGT | 0.0483 | 0 | 1 | 0 |
| LC | CTGTGC | 0.03977 | 0 | 1 | 0 |
| LC | CTTTGT | 0.1335 | 0 | 1 | 0 |
| LC | CTTTGC | 0.06534 | 0 | 1 | 0 |
| LC | CTATGT | 0.09659 | 0 | 1 | 0 |
| LC | CTATGC | 0.04261 | 0 | 1 | 0 |
| LC | TTGTGC | 0.08807 | 0 | 1 | 0 |
| LC | TTGTGT | 0.1222 | 0 | 1 | 0 |
| LC | TTATGC | 0.1023 | 1 | 1 | 1 |
| LC | TTATGT | 0.1591 | 0 | 1 | 0 |
| LD | CTCGAC | 0.0143 | 0 | 0 | 0 |
| LD | CTCGAT | 0.04616 | 0 | 0 | 0 |
| LD | CTAGAT | 0.08973 | 0 | 0 | 0 |
| LD | CTTGAC | 0.03576 | 0 | 0 | 0 |
| LD | CTTGAT | 0.08257 | 0 | 0 | 0 |
| LD | CTAGAC | 0.05007 | 0 | 0 | 0 |
| LD | TTGGAC | 0.08843 | 0 | 0 | 0 |
| LD | CTGGAT | 0.08192 | 0 | 0 | 0 |
| LD | CTGGAC | 0.04616 | 0 | 0 | 0 |
| LD | TTAGAT | 0.1853 | 0 | 0 | 0 |
| LD | TTAGAC | 0.09363 | 0 | 0 | 0 |
| LD | TTGGAT | 0.186 | 0 | 0 | 0 |
| LE | CTGGAA | 0.08381 | 0 | 2 | 0 |
| LE | TTAGAG | 0.09644 | 0 | 2 | 0 |
| LE | CTTGAG | 0.0287 | 0 | 2 | 0 |
| LE | CTAGAG | 0.03961 | 0 | 2 | 0 |
| LE | TTGGAA | 0.2101 | 1 | 2 | 0.5 |
| LE | CTAGAA | 0.09931 | 0 | 2 | 0 |
| LE | CTGGAG | 0.03904 | 0 | 2 | 0 |
| LE | TTGGAG | 0.08324 | 0 | 2 | 0 |
| LE | CTTGAA | 0.08266 | 0 | 2 | 0 |
| LE | TTAGAA | 0.1935 | 1 | 2 | 0.5 |
| LE | CTCGAG | 0.01493 | 0 | 2 | 0 |
| LE | CTCGAA | 0.0287 | 0 | 2 | 0 |
| LF | CTATTT | 0.07968 | 0 | 0 | 0 |
| LF | CTGTTC | 0.05551 | 0 | 0 | 0 |
| LF | TTATTT | 0.1638 | 0 | 0 | 0 |
| LF | CTATTC | 0.04834 | 0 | 0 | 0 |
| LF | CTCTTT | 0.04476 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| LF | TTGTTT | 0.1218 | 0 | 0 | 0 |
| LF | CTCTTC | 0.03133 | 0 | 0 | 0 |
| LF | TTGTTC | 0.08953 | 0 | 0 | 0 |
| LF | CTTTTT | 0.1056 | 0 | 0 | 0 |
| LF | CTGTTT | 0.05461 | 0 | 0 | 0 |
| LF | CTTTTC | 0.09042 | 0 | 0 | 0 |
| LF | TTATTC | 0.1146 | 0 | 0 | 0 |
| LG | CTGGGC | 0.03369 | 0 | 1 | 0 |
| LG | CTGGGG | 0.01914 | 0 | 1 | 0 |
| LG | CTAGGT | 0.0536 | 0 | 1 | 0 |
| LG | CTGGGA | 0.0291 | 0 | 1 | 0 |
| LG | CTGGGT | 0.04441 | 0 | 1 | 0 |
| LG | CTTGGG | 0.01685 | 0 | 1 | 0 |
| LG | TTAGGC | 0.04441 | 0 | 1 | 0 |
| LG | CTTGGA | 0.03828 | 0 | 1 | 0 |
| LG | CTAGGC | 0.0268 | 0 | 1 | 0 |
| LG | CTAGGA | 0.0245 | 0 | 1 | 0 |
| LG | TTGGGT | 0.134 | 1 | 1 | 1 |
| LG | CTTGGT | 0.06432 | 0 | 1 | 0 |
| LG | TTGGGG | 0.03599 | 0 | 1 | 0 |
| LG | TTAGGG | 0.04441 | 0 | 1 | 0 |
| LG | CTCGGT | 0.03369 | 0 | 1 | 0 |
| LG | CTCGGG | 0.002297 | 0 | 1 | 0 |
| LG | CTCGGC | 0.01302 | 0 | 1 | 0 |
| LG | TTAGGA | 0.06815 | 0 | 1 | 0 |
| LG | CTAGGG | 0.01531 | 0 | 1 | 0 |
| LG | TTGGGA | 0.05819 | 0 | 1 | 0 |
| LG | TTGGGC | 0.04364 | 0 | 1 | 0 |
| LG | TTAGGT | 0.1095 | 0 | 1 | 0 |
| LG | CTTGGC | 0.03522 | 0 | 1 | 0 |
| LG | CTCGGA | 0.01149 | 0 | 1 | 0 |
| LH | CTGCAC | 0.04674 | 0 | 0 | 0 |
| LH | CTCCAC | 0.01503 | 0 | 0 | 0 |
| LH | CTCCAT | 0.03339 | 0 | 0 | 0 |
| LH | CTACAT | 0.1102 | 0 | 0 | 0 |
| LH | CTACAC | 0.04174 | 0 | 0 | 0 |
| LH | CTGCAT | 0.05676 | 0 | 0 | 0 |
| LH | CTTCAC | 0.05008 | 0 | 0 | 0 |
| LH | TTGCAC | 0.1135 | 0 | 0 | 0 |
| LH | TTACAT | 0.1619 | 0 | 0 | 0 |
| LH | TTACAC | 0.1052 | 0 | 0 | 0 |
| LH | TTGCAT | 0.1736 | 0 | 0 | 0 |
| LH | CTTCAT | 0.09182 | 0 | 0 | 0 |
| LI | CTCATA | 0.02654 | 0 | 0 | 0 |
| LI | CTCATC | 0.01481 | 0 | 0 | 0 |
| LI | TTAATT | 0.1142 | 0 | 0 | 0 |
| LI | TTAATA | 0.07346 | 0 | 0 | 0 |
| LI | TTAATC | 0.06728 | 0 | 0 | 0 |
| LI | TTGATA | 0.07963 | 0 | 0 | 0 |
| LI | CTAATC | 0.03704 | 0 | 0 | 0 |
| LI | CTAATA | 0.04444 | 0 | 0 | 0 |

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|----|--------|----------|---|---|--------|
| LI | CTAATT | 0.05247 | 0 | 0 | 0 |
| LI | TTGATT | 0.1599 | 0 | 0 | 0 |
| LI | TTGATC | 0.07654 | 0 | 0 | 0 |
| LI | CTTATT | 0.04753 | 0 | 0 | 0 |
| LI | CTCATT | 0.02901 | 0 | 0 | 0 |
| LI | CTTATC | 0.03025 | 0 | 0 | 0 |
| LI | CTTATA | 0.0284 | 0 | 0 | 0 |
| LI | CTGATC | 0.02778 | 0 | 0 | 0 |
| LI | CTGATT | 0.05432 | 0 | 0 | 0 |
| LI | CTGATA | 0.03642 | 0 | 0 | 0 |
| LK | CTTAAA | 0.04096 | 0 | 0 | 0 |
| LK | CTCAAG | 0.02485 | 0 | 0 | 0 |
| LK | CTCAAA | 0.03682 | 0 | 0 | 0 |
| LK | CTGAAG | 0.04234 | 0 | 0 | 0 |
| LK | TTGAAG | 0.1643 | 0 | 0 | 0 |
| LK | CTGAAA | 0.07317 | 0 | 0 | 0 |
| LK | TTGAAA | 0.2025 | 0 | 0 | 0 |
| LK | CTAAAA | 0.07639 | 0 | 0 | 0 |
| LK | CTTAAG | 0.02301 | 0 | 0 | 0 |
| LK | TTAAAG | 0.1137 | 0 | 0 | 0 |
| LK | TTAAAA | 0.1454 | 0 | 0 | 0 |
| LK | CTAAAG | 0.0566 | 0 | 0 | 0 |
| LL | TTGTTA | 0.05614 | 0 | 3 | 0 |
| LL | TTGTTG | 0.0547 | 0 | 3 | 0 |
| LL | CTGCTG | 0.01691 | 0 | 3 | 0 |
| LL | CTCTTG | 0.01151 | 0 | 3 | 0 |
| LL | CTGCTC | 0.006477 | 0 | 3 | 0 |
| LL | TTGCTA | 0.03598 | 0 | 3 | 0 |
| LL | TTGCTT | 0.02195 | 0 | 3 | 0 |
| LL | CTACTG | 0.02087 | 0 | 3 | 0 |
| LL | TTGCTG | 0.02555 | 0 | 3 | 0 |
| LL | TTGCTC | 0.01475 | 0 | 3 | 0 |
| LL | CTACTA | 0.02375 | 0 | 3 | 0 |
| LL | CTACTC | 0.009356 | 0 | 3 | 0 |
| LL | CTACTT | 0.01691 | 0 | 3 | 0 |
| LL | TTACTA | 0.04822 | 0 | 3 | 0 |
| LL | CTTTTG | 0.05182 | 0 | 3 | 0 |
| LL | CTCCTT | 0.007557 | 0 | 3 | 0 |
| LL | CTCCTG | 0.006117 | 0 | 3 | 0 |
| LL | CTCCTC | 0.002159 | 0 | 3 | 0 |
| LL | CTTTTA | 0.06081 | 0 | 3 | 0 |
| LL | CTTCTT | 0.02159 | 0 | 3 | 0 |
| LL | CTTCTA | 0.02015 | 0 | 3 | 0 |
| LL | CTTCTC | 0.01187 | 0 | 3 | 0 |
| LL | CTTCTG | 0.01511 | 0 | 3 | 0 |
| LL | CTCCTA | 0.008996 | 0 | 3 | 0 |
| LL | CTGCTA | 0.01799 | 0 | 3 | 0 |
| LL | TTACTC | 0.01655 | 0 | 3 | 0 |
| LL | TTACTG | 0.0439 | 0 | 3 | 0 |
| LL | TTACTT | 0.04282 | 0 | 3 | 0 |
| LL | TTATTA | 0.07413 | 1 | 3 | 0.3333 |

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|----|--------|----------|---|---|--------|
| LL | CTATTA | 0.03958 | 0 | 3 | 0 |
| LL | CTATTG | 0.03742 | 1 | 3 | 0.3333 |
| LL | CTGTTG | 0.02591 | 0 | 3 | 0 |
| LL | CTGTTA | 0.02411 | 0 | 3 | 0 |
| LL | CTCTTA | 0.01367 | 0 | 3 | 0 |
| LL | TTATTG | 0.07593 | 1 | 3 | 0.3333 |
| LL | CTGCTT | 0.01871 | 0 | 3 | 0 |
| LM | CTCATG | 0.04475 | 0 | 0 | 0 |
| LM | CTTATG | 0.07393 | 0 | 0 | 0 |
| LM | CTGATG | 0.09728 | 0 | 0 | 0 |
| LM | CTAATG | 0.1556 | 0 | 0 | 0 |
| LM | TTGATG | 0.3171 | 0 | 0 | 0 |
| LM | TTAATG | 0.3113 | 0 | 0 | 0 |
| LN | TTGAAC | 0.1361 | 0 | 0 | 0 |
| LN | CTTAAC | 0.02943 | 0 | 0 | 0 |
| LN | CTGAAC | 0.05089 | 0 | 0 | 0 |
| LN | CTGAAT | 0.07174 | 0 | 0 | 0 |
| LN | CTTAAT | 0.04537 | 0 | 0 | 0 |
| LN | TTGAAT | 0.1901 | 0 | 0 | 0 |
| LN | CTCAAC | 0.02514 | 0 | 0 | 0 |
| LN | CTAAAC | 0.06193 | 0 | 0 | 0 |
| LN | CTCAAT | 0.04108 | 0 | 0 | 0 |
| LN | CTAAAT | 0.09442 | 0 | 0 | 0 |
| LN | TTAAAT | 0.1441 | 0 | 0 | 0 |
| LN | TTAAAC | 0.1097 | 0 | 0 | 0 |
| LP | CTACCG | 0.01309 | 0 | 1 | 0 |
| LP | TTGCCT | 0.06255 | 0 | 1 | 0 |
| LP | CTACCC | 0.02836 | 0 | 1 | 0 |
| LP | CTTCCT | 0.04364 | 0 | 1 | 0 |
| LP | CTCCCA | 0.02618 | 0 | 1 | 0 |
| LP | TTGCCC | 0.04582 | 0 | 1 | 0 |
| LP | CTACCT | 0.05164 | 0 | 1 | 0 |
| LP | CTTCCC | 0.02182 | 0 | 1 | 0 |
| LP | TTGCCG | 0.02836 | 0 | 1 | 0 |
| LP | CTTCCG | 0.01673 | 0 | 1 | 0 |
| LP | CTCCCT | 0.01891 | 0 | 1 | 0 |
| LP | CTGCCA | 0.03345 | 0 | 1 | 0 |
| LP | TTACCT | 0.08291 | 0 | 1 | 0 |
| LP | TTACCG | 0.04436 | 0 | 1 | 0 |
| LP | TTACCA | 0.1236 | 1 | 1 | 1 |
| LP | TTACCC | 0.04 | 0 | 1 | 0 |
| LP | CTGCCC | 0.02545 | 0 | 1 | 0 |
| LP | CTGCCG | 0.01527 | 0 | 1 | 0 |
| LP | CTCCCC | 0.01091 | 0 | 1 | 0 |
| LP | CTTCCA | 0.06909 | 0 | 1 | 0 |
| LP | CTCCCG | 0.003636 | 0 | 1 | 0 |
| LP | CTGCCT | 0.02618 | 0 | 1 | 0 |
| LP | TTGCCA | 0.09745 | 0 | 1 | 0 |
| LP | CTACCA | 0.07055 | 0 | 1 | 0 |
| LQ | CTTCAG | 0.0392 | 0 | 3 | 0 |
| LQ | TTGCAG | 0.07533 | 0 | 3 | 0 |

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|----|--------|----------|---|---|--------|
| LQ | CTTCAA | 0.08148 | 0 | 3 | 0 |
| LQ | CTCCAG | 0.0123 | 0 | 3 | 0 |
| LQ | TTGCAA | 0.1845 | 1 | 3 | 0.3333 |
| LQ | TTACAG | 0.09915 | 0 | 3 | 0 |
| LQ | TTACAA | 0.2175 | 1 | 3 | 0.3333 |
| LQ | CTGCAA | 0.08301 | 0 | 3 | 0 |
| LQ | CTACAA | 0.1015 | 1 | 3 | 0.3333 |
| LQ | CTGCGG | 0.04074 | 0 | 3 | 0 |
| LQ | CTCCAA | 0.01614 | 0 | 3 | 0 |
| LQ | CTACAG | 0.04919 | 0 | 3 | 0 |
| LR | CTGAGG | 0.01779 | 0 | 0 | 0 |
| LR | CTTCGT | 0.02243 | 0 | 0 | 0 |
| LR | CTTCGG | 0.003094 | 0 | 0 | 0 |
| LR | CTGAGA | 0.0464 | 0 | 0 | 0 |
| LR | CTAAGA | 0.07193 | 0 | 0 | 0 |
| LR | CTACGC | 0.007734 | 0 | 0 | 0 |
| LR | CTACGA | 0.009281 | 0 | 0 | 0 |
| LR | CTTCGC | 0.008507 | 0 | 0 | 0 |
| LR | CTTCGA | 0.0232 | 0 | 0 | 0 |
| LR | CTGCGA | 0.007734 | 0 | 0 | 0 |
| LR | CTGCGC | 0.01005 | 0 | 0 | 0 |
| LR | CTGCGG | 0.006187 | 0 | 0 | 0 |
| LR | CTTAGA | 0.02552 | 0 | 0 | 0 |
| LR | CTAAGG | 0.03326 | 0 | 0 | 0 |
| LR | CTTAGG | 0.01624 | 0 | 0 | 0 |
| LR | CTACGG | 0.007734 | 0 | 0 | 0 |
| LR | CTGCGT | 0.01547 | 0 | 0 | 0 |
| LR | CTCCGT | 0.003094 | 0 | 0 | 0 |
| LR | CTCAGG | 0.01315 | 0 | 0 | 0 |
| LR | CTCCGA | 0.003867 | 0 | 0 | 0 |
| LR | TTACGT | 0.03326 | 0 | 0 | 0 |
| LR | TTACGG | 0.0116 | 0 | 0 | 0 |
| LR | TTGCGT | 0.03558 | 0 | 0 | 0 |
| LR | TTGCGG | 0.009281 | 0 | 0 | 0 |
| LR | TTGAGA | 0.1562 | 0 | 0 | 0 |
| LR | TTGAGG | 0.06961 | 0 | 0 | 0 |
| LR | TTGCGA | 0.01701 | 0 | 0 | 0 |
| LR | TTGCGC | 0.01315 | 0 | 0 | 0 |
| LR | TTACGC | 0.02398 | 0 | 0 | 0 |
| LR | CTCAGA | 0.01547 | 0 | 0 | 0 |
| LR | CTCCGC | 0.00232 | 0 | 0 | 0 |
| LR | TTAAGG | 0.0611 | 0 | 0 | 0 |
| LR | CTACGT | 0.02862 | 0 | 0 | 0 |
| LR | TTAAGA | 0.1469 | 0 | 0 | 0 |
| LR | CTCCGG | 0.001547 | 0 | 0 | 0 |
| LR | TTACGA | 0.02166 | 0 | 0 | 0 |
| LS | CTAAGT | 0.02362 | 0 | 0 | 0 |
| LS | TTATCG | 0.03821 | 0 | 0 | 0 |
| LS | CTGTCC | 0.01116 | 0 | 0 | 0 |
| LS | CTGTCA | 0.02233 | 0 | 0 | 0 |
| LS | TTATCC | 0.04294 | 0 | 0 | 0 |

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|----|---------|----------|---|---|---|
| LS | CTAAGC | 0.02147 | 0 | 0 | 0 |
| LS | CTCAGT | 0.01374 | 0 | 0 | 0 |
| LS | TTAAGT | 0.04723 | 0 | 0 | 0 |
| LS | CTGTCTG | 0.009446 | 0 | 0 | 0 |
| LS | CTCAGC | 0.008158 | 0 | 0 | 0 |
| LS | CTGAGT | 0.01632 | 0 | 0 | 0 |
| LS | TTATCA | 0.06183 | 0 | 0 | 0 |
| LS | TTAAGC | 0.03006 | 0 | 0 | 0 |
| LS | CTGAGC | 0.01546 | 0 | 0 | 0 |
| LS | CTATCT | 0.04165 | 0 | 0 | 0 |
| LS | TTGTCT | 0.0438 | 0 | 0 | 0 |
| LS | CTCTCA | 0.009875 | 0 | 0 | 0 |
| LS | TTGTCTG | 0.01288 | 0 | 0 | 0 |
| LS | CTGTCT | 0.02147 | 0 | 0 | 0 |
| LS | TTGTCA | 0.04122 | 0 | 0 | 0 |
| LS | CTCTCC | 0.0103 | 0 | 0 | 0 |
| LS | CTCTCG | 0.01202 | 0 | 0 | 0 |
| LS | CTTTTCG | 0.01589 | 0 | 0 | 0 |
| LS | CTTTCC | 0.03564 | 0 | 0 | 0 |
| LS | CTTTCA | 0.04422 | 0 | 0 | 0 |
| LS | CTCTCT | 0.01675 | 0 | 0 | 0 |
| LS | CTATCA | 0.0365 | 0 | 0 | 0 |
| LS | TTGTCC | 0.03006 | 0 | 0 | 0 |
| LS | CTATCC | 0.02877 | 0 | 0 | 0 |
| LS | CTATCG | 0.01245 | 0 | 0 | 0 |
| LS | CTTTCT | 0.05453 | 0 | 0 | 0 |
| LS | TTATCT | 0.07471 | 0 | 0 | 0 |
| LS | TTGAGC | 0.03349 | 0 | 0 | 0 |
| LS | CTTAGT | 0.008158 | 0 | 0 | 0 |
| LS | CTTAGC | 0.009446 | 0 | 0 | 0 |
| LS | TTGAGT | 0.04422 | 0 | 0 | 0 |
| LT | CTCACC | 0.01761 | 0 | 0 | 0 |
| LT | CTCACA | 0.02013 | 0 | 0 | 0 |
| LT | CTAACT | 0.03836 | 0 | 0 | 0 |
| LT | CTGACC | 0.02201 | 0 | 0 | 0 |
| LT | CTAACG | 0.01761 | 0 | 0 | 0 |
| LT | CTGACG | 0.01824 | 0 | 0 | 0 |
| LT | CTGACA | 0.03333 | 0 | 0 | 0 |
| LT | CTCACT | 0.02516 | 0 | 0 | 0 |
| LT | CTTACG | 0.01698 | 0 | 0 | 0 |
| LT | CTTACT | 0.04151 | 0 | 0 | 0 |
| LT | CTCACG | 0.007547 | 0 | 0 | 0 |
| LT | CTTACC | 0.02201 | 0 | 0 | 0 |
| LT | TTGACA | 0.08868 | 0 | 0 | 0 |
| LT | TTGACC | 0.07421 | 0 | 0 | 0 |
| LT | TTGACT | 0.09371 | 0 | 0 | 0 |
| LT | TTGACG | 0.04025 | 0 | 0 | 0 |
| LT | CTAACC | 0.02516 | 0 | 0 | 0 |
| LT | CTTACA | 0.02704 | 0 | 0 | 0 |
| LT | CTAACA | 0.0478 | 0 | 0 | 0 |
| LT | TTAACC | 0.06918 | 0 | 0 | 0 |

| | | | | | |
|----|---------|----------|---|---|-----|
| LT | TTAACA | 0.09748 | 0 | 0 | 0 |
| LT | TTAACG | 0.0434 | 0 | 0 | 0 |
| LT | TTAACT | 0.09057 | 0 | 0 | 0 |
| LT | CTGACT | 0.02201 | 0 | 0 | 0 |
| LV | CTAGTT | 0.04106 | 0 | 2 | 0 |
| LV | CTAGTG | 0.0341 | 0 | 2 | 0 |
| LV | CTAGTC | 0.02644 | 0 | 2 | 0 |
| LV | TTGGTT | 0.1232 | 1 | 2 | 0.5 |
| LV | CTCGTC | 0.007655 | 0 | 2 | 0 |
| LV | CTAGTA | 0.03619 | 0 | 2 | 0 |
| LV | TTAGTT | 0.09534 | 0 | 2 | 0 |
| LV | TTAGTC | 0.05289 | 0 | 2 | 0 |
| LV | TTAGTA | 0.05567 | 1 | 2 | 0.5 |
| LV | TTAGTG | 0.05567 | 0 | 2 | 0 |
| LV | CTCGTG | 0.01044 | 0 | 2 | 0 |
| LV | TTGGTC | 0.05985 | 0 | 2 | 0 |
| LV | TTGGTA | 0.05637 | 0 | 2 | 0 |
| LV | TTGGTG | 0.05846 | 0 | 2 | 0 |
| LV | CTCGTA | 0.009047 | 0 | 2 | 0 |
| LV | CTTG TG | 0.02644 | 0 | 2 | 0 |
| LV | CTCGTT | 0.02157 | 0 | 2 | 0 |
| LV | CTTGTC | 0.02714 | 0 | 2 | 0 |
| LV | CTTGTT | 0.05498 | 0 | 2 | 0 |
| LV | CTGGTT | 0.03619 | 0 | 2 | 0 |
| LV | CTTGTA | 0.02436 | 0 | 2 | 0 |
| LV | CTGGTG | 0.02436 | 0 | 2 | 0 |
| LV | CTGGTC | 0.02436 | 0 | 2 | 0 |
| LV | CTGGTA | 0.03827 | 0 | 2 | 0 |
| LW | CTATGG | 0.1868 | 0 | 2 | 0 |
| LW | CTTTGG | 0.1946 | 0 | 2 | 0 |
| LW | CTCTGG | 0.07004 | 0 | 2 | 0 |
| LW | TTATGG | 0.2957 | 1 | 2 | 0.5 |
| LW | TTGTGG | 0.1479 | 1 | 2 | 0.5 |
| LW | CTGTGG | 0.1051 | 0 | 2 | 0 |
| LY | CTGTAT | 0.0555 | 0 | 2 | 0 |
| LY | TTATAC | 0.1001 | 1 | 2 | 0.5 |
| LY | TTATAT | 0.161 | 1 | 2 | 0.5 |
| LY | CTGTAC | 0.04026 | 0 | 2 | 0 |
| LY | CTTTAT | 0.1121 | 0 | 2 | 0 |
| LY | TTGTAC | 0.09249 | 0 | 2 | 0 |
| LY | CTTTAC | 0.07291 | 0 | 2 | 0 |
| LY | TTGTAT | 0.1251 | 0 | 2 | 0 |
| LY | CTCTAC | 0.03264 | 0 | 2 | 0 |
| LY | CTATAT | 0.09249 | 0 | 2 | 0 |
| LY | CTATAC | 0.06638 | 0 | 2 | 0 |
| LY | CTCTAT | 0.04897 | 0 | 2 | 0 |
| M* | ATGTAA | 0.3333 | 0 | 0 | 0 |
| M* | ATGTGA | 0.3333 | 0 | 0 | 0 |
| M* | ATGTAG | 0.3333 | 0 | 0 | 0 |
| MA | ATGGCC | 0.212 | 0 | 1 | 0 |
| MA | ATGGCG | 0.1172 | 0 | 1 | 0 |

| | | | | | |
|----|--------|---------|---|---|---|
| MA | ATGGCA | 0.3217 | 0 | 1 | 0 |
| MA | ATGGCT | 0.3491 | 1 | 1 | 1 |
| MC | ATGTGT | 0.6032 | 0 | 0 | 0 |
| MC | ATGTGC | 0.3968 | 0 | 0 | 0 |
| MD | ATGGAC | 0.3978 | 0 | 0 | 0 |
| MD | ATGGAT | 0.6022 | 0 | 0 | 0 |
| ME | ATGGAA | 0.735 | 0 | 0 | 0 |
| ME | ATGGAG | 0.265 | 0 | 0 | 0 |
| MF | ATGTTT | 0.6531 | 0 | 0 | 0 |
| MF | ATGTTC | 0.3469 | 0 | 0 | 0 |
| MG | ATGGGA | 0.217 | 0 | 0 | 0 |
| MG | ATGGGG | 0.1466 | 0 | 0 | 0 |
| MG | ATGGGT | 0.4223 | 0 | 0 | 0 |
| MG | ATGGGC | 0.2141 | 0 | 0 | 0 |
| MH | ATGCAC | 0.3039 | 0 | 0 | 0 |
| MH | ATGCAT | 0.6961 | 0 | 0 | 0 |
| MI | ATGATC | 0.2109 | 0 | 0 | 0 |
| MI | ATGATT | 0.5208 | 0 | 0 | 0 |
| MI | ATGATA | 0.2682 | 0 | 0 | 0 |
| MK | ATGAAG | 0.4093 | 0 | 0 | 0 |
| MK | ATGAAA | 0.5907 | 0 | 0 | 0 |
| ML | ATGCTC | 0.06654 | 0 | 0 | 0 |
| ML | ATGCTG | 0.1616 | 0 | 0 | 0 |
| ML | ATGTTG | 0.1844 | 0 | 0 | 0 |
| ML | ATGTTA | 0.2224 | 0 | 0 | 0 |
| ML | ATGCTT | 0.1958 | 0 | 0 | 0 |
| ML | ATGCTA | 0.1692 | 0 | 0 | 0 |
| MM | ATGATG | 1 | 0 | 0 | 0 |
| MN | ATGAAT | 0.5829 | 0 | 0 | 0 |
| MN | ATGAAC | 0.4171 | 0 | 0 | 0 |
| MP | ATGCCG | 0.09955 | 0 | 0 | 0 |
| MP | ATGCCC | 0.1719 | 0 | 0 | 0 |
| MP | ATGCCT | 0.371 | 0 | 0 | 0 |
| MP | ATGCCA | 0.3575 | 0 | 0 | 0 |
| MQ | ATGCAA | 0.7228 | 0 | 0 | 0 |
| MQ | ATGCAG | 0.2772 | 0 | 0 | 0 |
| MR | ATGCGC | 0.04693 | 0 | 1 | 0 |
| MR | ATGCGA | 0.05776 | 0 | 1 | 0 |
| MR | ATGCGT | 0.13 | 0 | 1 | 0 |
| MR | ATGAGA | 0.5271 | 1 | 1 | 1 |
| MR | ATGCGG | 0.04332 | 0 | 1 | 0 |
| MR | ATGAGG | 0.1949 | 0 | 1 | 0 |
| MS | ATGAGC | 0.1264 | 0 | 0 | 0 |
| MS | ATGTCT | 0.2599 | 0 | 0 | 0 |
| MS | ATGTCA | 0.1895 | 0 | 0 | 0 |
| MS | ATGTCC | 0.1137 | 0 | 0 | 0 |
| MS | ATGAGT | 0.1679 | 0 | 0 | 0 |
| MS | ATGTCC | 0.1426 | 0 | 0 | 0 |
| MT | ATGACG | 0.1055 | 0 | 0 | 0 |
| MT | ATGACA | 0.397 | 0 | 0 | 0 |
| MT | ATGACT | 0.3065 | 0 | 0 | 0 |

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|----|---------|---------|---|---|---|
| MT | ATGACC | 0.191 | 0 | 0 | 0 |
| MV | ATGGTC | 0.1943 | 0 | 0 | 0 |
| MV | ATGGTA | 0.2357 | 0 | 0 | 0 |
| MV | ATGGTT | 0.3662 | 0 | 0 | 0 |
| MV | ATGGTG | 0.2038 | 0 | 0 | 0 |
| MW | ATGTGG | 1 | 0 | 0 | 0 |
| MY | ATGTAC | 0.5146 | 0 | 0 | 0 |
| MY | ATGTAT | 0.4854 | 0 | 0 | 0 |
| N* | AATTAA | 0.1892 | 0 | 1 | 0 |
| N* | AATTAG | 0.1081 | 0 | 1 | 0 |
| N* | AACTAA | 0.2162 | 1 | 1 | 1 |
| N* | AACTAG | 0.1081 | 0 | 1 | 0 |
| N* | AATTGA | 0.2162 | 0 | 1 | 0 |
| N* | AACTGA | 0.1622 | 0 | 1 | 0 |
| NA | AACGCT | 0.1143 | 0 | 0 | 0 |
| NA | AATGCC | 0.1547 | 0 | 0 | 0 |
| NA | AACGCG | 0.02803 | 0 | 0 | 0 |
| NA | AATGCA | 0.2096 | 0 | 0 | 0 |
| NA | AATGCG | 0.1031 | 0 | 0 | 0 |
| NA | AATGCT | 0.2298 | 0 | 0 | 0 |
| NA | AACGCA | 0.09865 | 0 | 0 | 0 |
| NA | AACGCC | 0.06166 | 0 | 0 | 0 |
| NC | AATTGT | 0.3676 | 0 | 0 | 0 |
| NC | AACTGT | 0.299 | 0 | 0 | 0 |
| NC | AATTGC | 0.1814 | 0 | 0 | 0 |
| NC | AACTGC | 0.152 | 0 | 0 | 0 |
| ND | AACGAC | 0.1156 | 0 | 0 | 0 |
| ND | AATGAT | 0.4138 | 0 | 0 | 0 |
| ND | AATGAC | 0.2339 | 0 | 0 | 0 |
| ND | AACGAT | 0.2367 | 0 | 0 | 0 |
| NE | AACGAG | 0.09524 | 0 | 0 | 0 |
| NE | AATGAG | 0.1977 | 0 | 0 | 0 |
| NE | AATGAA | 0.4778 | 0 | 0 | 0 |
| NE | AACGAA | 0.2292 | 0 | 0 | 0 |
| NF | AAT TTC | 0.2651 | 0 | 0 | 0 |
| NF | AAT TTT | 0.3501 | 0 | 0 | 0 |
| NF | AACTTC | 0.1513 | 0 | 0 | 0 |
| NF | AACTTT | 0.2334 | 0 | 0 | 0 |
| NG | AATGGG | 0.09921 | 0 | 0 | 0 |
| NG | AATGGA | 0.1582 | 0 | 0 | 0 |
| NG | AATGGC | 0.1493 | 0 | 0 | 0 |
| NG | AACGGT | 0.1493 | 0 | 0 | 0 |
| NG | AACGGA | 0.07367 | 0 | 0 | 0 |
| NG | AATGGT | 0.2593 | 0 | 0 | 0 |
| NG | AACGGC | 0.0668 | 0 | 0 | 0 |
| NG | AACGGG | 0.0442 | 0 | 0 | 0 |
| NH | AACCAC | 0.1243 | 0 | 0 | 0 |
| NH | AACCAT | 0.2655 | 0 | 0 | 0 |
| NH | AATCAT | 0.4266 | 0 | 0 | 0 |
| NH | AATCAC | 0.1836 | 0 | 0 | 0 |
| NI | AACATT | 0.19 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| NI | AACATA | 0.1062 | 0 | 0 | 0 |
| NI | AATATT | 0.2913 | 0 | 0 | 0 |
| NI | AATATA | 0.1627 | 0 | 0 | 0 |
| NI | AACATC | 0.09793 | 0 | 0 | 0 |
| NI | AATATC | 0.1519 | 0 | 0 | 0 |
| NK | AACAAA | 0.25 | 0 | 0 | 0 |
| NK | AACAAG | 0.2154 | 0 | 0 | 0 |
| NK | AATAAG | 0.2066 | 0 | 0 | 0 |
| NK | AATAAA | 0.328 | 0 | 0 | 0 |
| NL | AACTTG | 0.1213 | 0 | 0 | 0 |
| NL | AACTTA | 0.08681 | 0 | 0 | 0 |
| NL | AATCTA | 0.07952 | 0 | 0 | 0 |
| NL | AATTTA | 0.1789 | 0 | 0 | 0 |
| NL | AACCTC | 0.02319 | 0 | 0 | 0 |
| NL | AACCTG | 0.03777 | 0 | 0 | 0 |
| NL | AACCTT | 0.06097 | 0 | 0 | 0 |
| NL | AACCTA | 0.05434 | 0 | 0 | 0 |
| NL | AATCTG | 0.05036 | 0 | 0 | 0 |
| NL | AATTTG | 0.1915 | 0 | 0 | 0 |
| NL | AATCTC | 0.03777 | 0 | 0 | 0 |
| NL | AATCTT | 0.07753 | 0 | 0 | 0 |
| NM | AACATG | 0.3754 | 0 | 0 | 0 |
| NM | AATATG | 0.6246 | 0 | 0 | 0 |
| NN | AATAAT | 0.3444 | 0 | 0 | 0 |
| NN | AATAAC | 0.2445 | 0 | 0 | 0 |
| NN | AACAAC | 0.1559 | 0 | 0 | 0 |
| NN | AACAAT | 0.2551 | 0 | 0 | 0 |
| NP | AATCCA | 0.2221 | 0 | 0 | 0 |
| NP | AATCCG | 0.09885 | 0 | 0 | 0 |
| NP | AATCCT | 0.2221 | 0 | 0 | 0 |
| NP | AACCCG | 0.03295 | 0 | 0 | 0 |
| NP | AATCCC | 0.08309 | 0 | 0 | 0 |
| NP | AACCCT | 0.1232 | 0 | 0 | 0 |
| NP | AACCCC | 0.06877 | 0 | 0 | 0 |
| NP | AACCCA | 0.149 | 0 | 0 | 0 |
| NQ | AATCAG | 0.1339 | 0 | 1 | 0 |
| NQ | AACCAA | 0.3193 | 0 | 1 | 0 |
| NQ | AACCAG | 0.1633 | 0 | 1 | 0 |
| NQ | AATCAA | 0.3835 | 1 | 1 | 1 |
| NR | AACCGA | 0.01943 | 0 | 0 | 0 |
| NR | AACCGG | 0.01196 | 0 | 0 | 0 |
| NR | AACCGC | 0.01943 | 0 | 0 | 0 |
| NR | AATAGG | 0.142 | 0 | 0 | 0 |
| NR | AATAGA | 0.2212 | 0 | 0 | 0 |
| NR | AACCGT | 0.07623 | 0 | 0 | 0 |
| NR | AATCGT | 0.06428 | 0 | 0 | 0 |
| NR | AACAGG | 0.09268 | 0 | 0 | 0 |
| NR | AACAGA | 0.2377 | 0 | 0 | 0 |
| NR | AATCGG | 0.01794 | 0 | 0 | 0 |
| NR | AATCGC | 0.04634 | 0 | 0 | 0 |
| NR | AATCGA | 0.05082 | 0 | 0 | 0 |

| | | | | | |
|----|---------|---------|---|---|---|
| NS | AACAGC | 0.06146 | 0 | 0 | 0 |
| NS | AATAGC | 0.07122 | 0 | 0 | 0 |
| NS | AACTCT | 0.1034 | 0 | 0 | 0 |
| NS | AACAGT | 0.08788 | 0 | 0 | 0 |
| NS | AACTCG | 0.03331 | 0 | 0 | 0 |
| NS | AATTCA | 0.1298 | 0 | 0 | 0 |
| NS | AATTCG | 0.06146 | 0 | 0 | 0 |
| NS | AATTCT | 0.1327 | 0 | 0 | 0 |
| NS | AACTCA | 0.0741 | 0 | 0 | 0 |
| NS | AATAGT | 0.1022 | 0 | 0 | 0 |
| NS | AACTCC | 0.07007 | 0 | 0 | 0 |
| NS | AATTCC | 0.07237 | 0 | 0 | 0 |
| NT | AACACC | 0.08977 | 0 | 0 | 0 |
| NT | AACACA | 0.1326 | 0 | 0 | 0 |
| NT | AACTACT | 0.1639 | 0 | 0 | 0 |
| NT | AACACG | 0.05428 | 0 | 0 | 0 |
| NT | AATACC | 0.1075 | 0 | 0 | 0 |
| NT | AATACT | 0.1816 | 0 | 0 | 0 |
| NT | AATACG | 0.07307 | 0 | 0 | 0 |
| NT | AATACA | 0.1973 | 0 | 0 | 0 |
| NV | AACGTT | 0.1821 | 0 | 0 | 0 |
| NV | AATGTA | 0.1429 | 0 | 0 | 0 |
| NV | AACGTG | 0.05231 | 0 | 0 | 0 |
| NV | AACGTC | 0.09557 | 0 | 0 | 0 |
| NV | AACGTA | 0.07143 | 0 | 0 | 0 |
| NV | AATGTG | 0.1046 | 0 | 0 | 0 |
| NV | AATGTC | 0.1268 | 0 | 0 | 0 |
| NV | AATGTT | 0.2243 | 0 | 0 | 0 |
| NW | AATTGG | 0.5668 | 0 | 0 | 0 |
| NW | AACTGG | 0.4332 | 0 | 0 | 0 |
| NY | AATTAT | 0.3502 | 1 | 1 | 1 |
| NY | AATTAC | 0.2526 | 0 | 1 | 0 |
| NY | AACTAC | 0.1812 | 0 | 1 | 0 |
| NY | AACTAT | 0.216 | 0 | 1 | 0 |
| P* | CCCTAA | 0.125 | 0 | 0 | 0 |
| P* | CCCTAG | 0 | 0 | 0 | 0 |
| P* | CCGTAA | 0 | 0 | 0 | 0 |
| P* | CCGTAG | 0 | 0 | 0 | 0 |
| P* | CCCTGA | 0 | 0 | 0 | 0 |
| P* | CCTTAA | 0 | 0 | 0 | 0 |
| P* | CCTTAG | 0.125 | 0 | 0 | 0 |
| P* | CCATAA | 0.125 | 0 | 0 | 0 |
| P* | CCATGA | 0.375 | 0 | 0 | 0 |
| P* | CCGTGA | 0.25 | 0 | 0 | 0 |
| P* | CCATAG | 0 | 0 | 0 | 0 |
| P* | CCTTGA | 0 | 0 | 0 | 0 |
| PA | CCCGCC | 0.01274 | 0 | 1 | 0 |
| PA | CCTGCA | 0.1369 | 0 | 1 | 0 |
| PA | CCTGCC | 0.05096 | 0 | 1 | 0 |
| PA | CCTGCG | 0.03981 | 0 | 1 | 0 |
| PA | CCCGCA | 0.04936 | 0 | 1 | 0 |

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|----|--------|---------|---|---|---|
| PA | CCCGCT | 0.05732 | 0 | 1 | 0 |
| PA | CCTGCT | 0.1608 | 0 | 1 | 0 |
| PA | CCCGCG | 0.01274 | 0 | 1 | 0 |
| PA | CCAGCC | 0.07166 | 0 | 1 | 0 |
| PA | CCAGCG | 0.03981 | 0 | 1 | 0 |
| PA | CCAGCA | 0.1162 | 0 | 1 | 0 |
| PA | CCAGCT | 0.1401 | 1 | 1 | 1 |
| PA | CCGGCA | 0.03822 | 0 | 1 | 0 |
| PA | CCGGCT | 0.03662 | 0 | 1 | 0 |
| PA | CCGGCC | 0.01911 | 0 | 1 | 0 |
| PA | CCGGCG | 0.01752 | 0 | 1 | 0 |
| PC | CCTTGT | 0.1622 | 0 | 0 | 0 |
| PC | CCTTGC | 0.1081 | 0 | 0 | 0 |
| PC | CCGTGC | 0.02703 | 0 | 0 | 0 |
| PC | CCCTGT | 0.06306 | 0 | 0 | 0 |
| PC | CCATGT | 0.3063 | 0 | 0 | 0 |
| PC | CCATGC | 0.2252 | 0 | 0 | 0 |
| PC | CCGTGT | 0.05405 | 0 | 0 | 0 |
| PC | CCCTGC | 0.05405 | 0 | 0 | 0 |
| PD | CCCGAC | 0.02932 | 0 | 1 | 0 |
| PD | CCGGAT | 0.07655 | 0 | 1 | 0 |
| PD | CCGGAC | 0.04397 | 0 | 1 | 0 |
| PD | CCTGAC | 0.1156 | 0 | 1 | 0 |
| PD | CCTGAT | 0.2638 | 1 | 1 | 1 |
| PD | CCCGAT | 0.08143 | 0 | 1 | 0 |
| PD | CCAGAT | 0.2704 | 0 | 1 | 0 |
| PD | CCAGAC | 0.1189 | 0 | 1 | 0 |
| PE | CCGGAA | 0.07446 | 0 | 0 | 0 |
| PE | CCTGAG | 0.1306 | 0 | 0 | 0 |
| PE | CCCGAG | 0.03666 | 0 | 0 | 0 |
| PE | CCCGAA | 0.07331 | 0 | 0 | 0 |
| PE | CCAGAG | 0.1226 | 0 | 0 | 0 |
| PE | CCGGAG | 0.03436 | 0 | 0 | 0 |
| PE | CCAGAA | 0.3162 | 0 | 0 | 0 |
| PE | CCTGAA | 0.2119 | 0 | 0 | 0 |
| PF | CCCTTT | 0.1183 | 0 | 0 | 0 |
| PF | CCATTC | 0.1452 | 0 | 0 | 0 |
| PF | CCTTTT | 0.1577 | 0 | 0 | 0 |
| PF | CCCTTC | 0.06989 | 0 | 0 | 0 |
| PF | CCGTTC | 0.04122 | 0 | 0 | 0 |
| PF | CCATTT | 0.2903 | 0 | 0 | 0 |
| PF | CCGTTT | 0.05914 | 0 | 0 | 0 |
| PF | CCTTTC | 0.1183 | 0 | 0 | 0 |
| PG | CCGGGT | 0.01898 | 0 | 1 | 0 |
| PG | CCGGGG | 0.02657 | 0 | 1 | 0 |
| PG | CCGGGC | 0.03605 | 0 | 1 | 0 |
| PG | CCCGGA | 0.03226 | 0 | 1 | 0 |
| PG | CCTGGT | 0.1727 | 1 | 1 | 1 |
| PG | CCTGGG | 0.06452 | 0 | 1 | 0 |
| PG | CCTGGC | 0.074 | 0 | 1 | 0 |
| PG | CCCGGC | 0.01328 | 0 | 1 | 0 |

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|----|--------|----------|---|---|---|
| PG | CCCGGG | 0.001898 | 0 | 1 | 0 |
| PG | CCGGGA | 0.04744 | 0 | 1 | 0 |
| PG | CCCGGT | 0.05693 | 0 | 1 | 0 |
| PG | CCAGGT | 0.2049 | 0 | 1 | 0 |
| PG | CCTGGA | 0.06452 | 0 | 1 | 0 |
| PG | CCAGGA | 0.07021 | 0 | 1 | 0 |
| PG | CCAGGC | 0.08918 | 0 | 1 | 0 |
| PG | CCAGGG | 0.02657 | 0 | 1 | 0 |
| PH | CCGCAT | 0.09278 | 0 | 0 | 0 |
| PH | CCACAT | 0.2371 | 0 | 0 | 0 |
| PH | CCACAC | 0.1168 | 0 | 0 | 0 |
| PH | CCCCAT | 0.1134 | 0 | 0 | 0 |
| PH | CCGCAC | 0.05155 | 0 | 0 | 0 |
| PH | CCTCAT | 0.244 | 0 | 0 | 0 |
| PH | CCCCAC | 0.03436 | 0 | 0 | 0 |
| PH | CCTCAC | 0.11 | 0 | 0 | 0 |
| PI | CCGATA | 0.0461 | 0 | 0 | 0 |
| PI | CCGATT | 0.06265 | 0 | 0 | 0 |
| PI | CCGATC | 0.0331 | 0 | 0 | 0 |
| PI | CCAATT | 0.1891 | 0 | 0 | 0 |
| PI | CCTATC | 0.0721 | 0 | 0 | 0 |
| PI | CCTATT | 0.1135 | 0 | 0 | 0 |
| PI | CCAATC | 0.09338 | 0 | 0 | 0 |
| PI | CCAATA | 0.1348 | 0 | 0 | 0 |
| PI | CCCATA | 0.05792 | 0 | 0 | 0 |
| PI | CCTATA | 0.06738 | 0 | 0 | 0 |
| PI | CCCATT | 0.07447 | 0 | 0 | 0 |
| PI | CCCATC | 0.05556 | 0 | 0 | 0 |
| PK | CCTAAA | 0.1464 | 0 | 1 | 0 |
| PK | CCTAAG | 0.08452 | 0 | 1 | 0 |
| PK | CCAAG | 0.07738 | 0 | 1 | 0 |
| PK | CAAAA | 0.2369 | 1 | 1 | 1 |
| PK | CAAAG | 0.2107 | 0 | 1 | 0 |
| PK | CCCAA | 0.1226 | 0 | 1 | 0 |
| PK | CCGAAG | 0.04762 | 0 | 1 | 0 |
| PK | CCGAAA | 0.07381 | 0 | 1 | 0 |
| PL | CCACTC | 0.02183 | 0 | 2 | 0 |
| PL | CCCTTA | 0.05255 | 0 | 2 | 0 |
| PL | CCACTG | 0.03557 | 0 | 2 | 0 |
| PL | CCTCTT | 0.03961 | 0 | 2 | 0 |
| PL | CCCTTG | 0.03638 | 0 | 2 | 0 |
| PL | CCACTA | 0.0485 | 0 | 2 | 0 |
| PL | CCCCTA | 0.02344 | 0 | 2 | 0 |
| PL | CCTTTG | 0.1027 | 0 | 2 | 0 |
| PL | CCTTTA | 0.07599 | 0 | 2 | 0 |
| PL | CCTCTG | 0.03557 | 0 | 2 | 0 |
| PL | CCACTT | 0.04446 | 0 | 2 | 0 |
| PL | CCCCTG | 0.01213 | 0 | 2 | 0 |
| PL | CCCCTT | 0.01213 | 0 | 2 | 0 |
| PL | CCGCTA | 0.0291 | 0 | 2 | 0 |
| PL | CCGCTC | 0.008892 | 0 | 2 | 0 |

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|----|--------|----------|---|---|-----|
| PL | CCGCTT | 0.0194 | 0 | 2 | 0 |
| PL | CCGCTG | 0.02183 | 0 | 2 | 0 |
| PL | CCGTTA | 0.04608 | 0 | 2 | 0 |
| PL | CCGTTG | 0.02991 | 0 | 2 | 0 |
| PL | CCTCTA | 0.03314 | 0 | 2 | 0 |
| PL | CCCCTC | 0.01132 | 0 | 2 | 0 |
| PL | CCATTA | 0.1229 | 1 | 2 | 0.5 |
| PL | CCTCTC | 0.02183 | 0 | 2 | 0 |
| PL | CCATTG | 0.1148 | 1 | 2 | 0.5 |
| PM | CCCATG | 0.1796 | 0 | 0 | 0 |
| PM | CCAATG | 0.4327 | 0 | 0 | 0 |
| PM | CCTATG | 0.249 | 0 | 0 | 0 |
| PM | CCGATG | 0.1388 | 0 | 0 | 0 |
| PN | CCCAAC | 0.07873 | 0 | 0 | 0 |
| PN | CCAAAT | 0.2666 | 0 | 0 | 0 |
| PN | CCTAAC | 0.1064 | 0 | 0 | 0 |
| PN | CCAAAC | 0.1436 | 0 | 0 | 0 |
| PN | CCTAAT | 0.1602 | 0 | 0 | 0 |
| PN | CCGAAT | 0.06906 | 0 | 0 | 0 |
| PN | CCCAAT | 0.1064 | 0 | 0 | 0 |
| PN | CCGAAC | 0.06906 | 0 | 0 | 0 |
| PP | CCGCCC | 0.01828 | 0 | 0 | 0 |
| PP | CCGCCA | 0.05222 | 0 | 0 | 0 |
| PP | CCCCCA | 0.03786 | 0 | 0 | 0 |
| PP | CCCCCT | 0.03003 | 0 | 0 | 0 |
| PP | CCGCCG | 0.005222 | 0 | 0 | 0 |
| PP | CCCCCG | 0.009138 | 0 | 0 | 0 |
| PP | CCACCT | 0.1358 | 0 | 0 | 0 |
| PP | CCGCCT | 0.03264 | 0 | 0 | 0 |
| PP | CCACCG | 0.06789 | 0 | 0 | 0 |
| PP | CCACCC | 0.04439 | 0 | 0 | 0 |
| PP | CCTCCC | 0.047 | 0 | 0 | 0 |
| PP | CCACCA | 0.2389 | 0 | 0 | 0 |
| PP | CCCCCC | 0.003916 | 0 | 0 | 0 |
| PP | CCTCCT | 0.09399 | 0 | 0 | 0 |
| PP | CCTCCA | 0.1423 | 0 | 0 | 0 |
| PP | CCTCCG | 0.04047 | 0 | 0 | 0 |
| PQ | CCCCAA | 0.07325 | 0 | 0 | 0 |
| PQ | CCACAG | 0.1533 | 0 | 0 | 0 |
| PQ | CCCCAG | 0.02896 | 0 | 0 | 0 |
| PQ | CCTCAG | 0.09199 | 0 | 0 | 0 |
| PQ | CCTCAA | 0.2879 | 0 | 0 | 0 |
| PQ | CCGCAG | 0.08688 | 0 | 0 | 0 |
| PQ | CCACAA | 0.1993 | 0 | 0 | 0 |
| PQ | CCGCAA | 0.07836 | 0 | 0 | 0 |
| PR | CCAAGA | 0.2588 | 0 | 0 | 0 |
| PR | CCTAGA | 0.0689 | 0 | 0 | 0 |
| PR | CCCAGG | 0.02607 | 0 | 0 | 0 |
| PR | CCACGT | 0.05959 | 0 | 0 | 0 |
| PR | CCAAGG | 0.1099 | 0 | 0 | 0 |
| PR | CCCAGA | 0.0838 | 0 | 0 | 0 |

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|----|---------|----------|---|---|---|
| PR | CCGCGC | 0.01117 | 0 | 0 | 0 |
| PR | CCTCGG | 0.0149 | 0 | 0 | 0 |
| PR | CCTCGC | 0.01862 | 0 | 0 | 0 |
| PR | CCTCGA | 0.04469 | 0 | 0 | 0 |
| PR | CCTCGT | 0.04842 | 0 | 0 | 0 |
| PR | CCACGA | 0.03352 | 0 | 0 | 0 |
| PR | CCACGG | 0.03166 | 0 | 0 | 0 |
| PR | CCACGC | 0.0149 | 0 | 0 | 0 |
| PR | CCCCGA | 0.007449 | 0 | 0 | 0 |
| PR | CCGAGA | 0.05773 | 0 | 0 | 0 |
| PR | CCCCGT | 0.02048 | 0 | 0 | 0 |
| PR | CCCCGG | 0.007449 | 0 | 0 | 0 |
| PR | CCCCGC | 0.005587 | 0 | 0 | 0 |
| PR | CCGAGG | 0.01676 | 0 | 0 | 0 |
| PR | CCTAGG | 0.03724 | 0 | 0 | 0 |
| PR | CCGCGA | 0.001862 | 0 | 0 | 0 |
| PR | CCGCGT | 0.01304 | 0 | 0 | 0 |
| PR | CCGCGG | 0.007449 | 0 | 0 | 0 |
| PS | CCATCG | 0.03495 | 0 | 0 | 0 |
| PS | CCATCT | 0.1193 | 0 | 0 | 0 |
| PS | CCTAGT | 0.03799 | 0 | 0 | 0 |
| PS | CCTTCA | 0.08587 | 0 | 0 | 0 |
| PS | CCTAGC | 0.01672 | 0 | 0 | 0 |
| PS | CCATCA | 0.09726 | 0 | 0 | 0 |
| PS | CCATCC | 0.05395 | 0 | 0 | 0 |
| PS | CCGTCA | 0.02128 | 0 | 0 | 0 |
| PS | CCGAGC | 0.007599 | 0 | 0 | 0 |
| PS | CCGAGT | 0.01748 | 0 | 0 | 0 |
| PS | CCAAGT | 0.05623 | 0 | 0 | 0 |
| PS | CCGTCC | 0.01216 | 0 | 0 | 0 |
| PS | CCTTCG | 0.03419 | 0 | 0 | 0 |
| PS | CCTTCT | 0.08891 | 0 | 0 | 0 |
| PS | CCCTCT | 0.06155 | 0 | 0 | 0 |
| PS | CCCTCG | 0.01748 | 0 | 0 | 0 |
| PS | CCCTCC | 0.02584 | 0 | 0 | 0 |
| PS | CCCTCA | 0.03495 | 0 | 0 | 0 |
| PS | CCCAGT | 0.0266 | 0 | 0 | 0 |
| PS | CCAAGC | 0.04711 | 0 | 0 | 0 |
| PS | CCTTCC | 0.04711 | 0 | 0 | 0 |
| PS | CCGTCT | 0.01976 | 0 | 0 | 0 |
| PS | CCCAGC | 0.02204 | 0 | 0 | 0 |
| PS | CCGTCCG | 0.01368 | 0 | 0 | 0 |
| PT | CCTACT | 0.09657 | 0 | 0 | 0 |
| PT | CCTACG | 0.03558 | 0 | 0 | 0 |
| PT | CCGACA | 0.03685 | 0 | 0 | 0 |
| PT | CCGACC | 0.01652 | 0 | 0 | 0 |
| PT | CCGACG | 0.01017 | 0 | 0 | 0 |
| PT | CCTACA | 0.08005 | 0 | 0 | 0 |
| PT | CCGACT | 0.0305 | 0 | 0 | 0 |
| PT | CCAACA | 0.1258 | 0 | 0 | 0 |
| PT | CCTACC | 0.07497 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| PT | CCCACG | 0.02287 | 0 | 0 | 0 |
| PT | CCCACT | 0.06226 | 0 | 0 | 0 |
| PT | CCAACT | 0.1817 | 0 | 0 | 0 |
| PT | CCAACG | 0.05718 | 0 | 0 | 0 |
| PT | CCCACA | 0.0521 | 0 | 0 | 0 |
| PT | CCCACC | 0.05083 | 0 | 0 | 0 |
| PT | CCAACC | 0.06607 | 0 | 0 | 0 |
| PV | CCTGTT | 0.1578 | 0 | 0 | 0 |
| PV | CCCGTG | 0.02993 | 0 | 0 | 0 |
| PV | CCCGTT | 0.06395 | 0 | 0 | 0 |
| PV | CCCGTC | 0.03129 | 0 | 0 | 0 |
| PV | CCCGTA | 0.04354 | 0 | 0 | 0 |
| PV | CCGGTG | 0.01769 | 0 | 0 | 0 |
| PV | CCGGTT | 0.03946 | 0 | 0 | 0 |
| PV | CCGGTC | 0.01361 | 0 | 0 | 0 |
| PV | CCGGTA | 0.04082 | 0 | 0 | 0 |
| PV | CCTGTA | 0.07891 | 0 | 0 | 0 |
| PV | CCAGTA | 0.09524 | 0 | 0 | 0 |
| PV | CCTGTC | 0.07483 | 0 | 0 | 0 |
| PV | CCAGTG | 0.0517 | 0 | 0 | 0 |
| PV | CCTGTG | 0.07347 | 0 | 0 | 0 |
| PV | CCAGTT | 0.1374 | 0 | 0 | 0 |
| PV | CCAGTC | 0.05034 | 0 | 0 | 0 |
| PW | CCATGG | 0.4365 | 0 | 0 | 0 |
| PW | CCTTGG | 0.2937 | 0 | 0 | 0 |
| PW | CCCTGG | 0.1667 | 0 | 0 | 0 |
| PW | CCGTGG | 0.1032 | 0 | 0 | 0 |
| PY | CCCTAT | 0.08874 | 0 | 0 | 0 |
| PY | CCCTAC | 0.06926 | 0 | 0 | 0 |
| PY | CCTTAC | 0.132 | 0 | 0 | 0 |
| PY | CCATAC | 0.1537 | 0 | 0 | 0 |
| PY | CCGTAC | 0.08009 | 0 | 0 | 0 |
| PY | CCATAT | 0.2143 | 0 | 0 | 0 |
| PY | CCGTAT | 0.08225 | 0 | 0 | 0 |
| PY | CCTTAT | 0.1797 | 0 | 0 | 0 |
| Q* | CAGTAG | 0.1364 | 0 | 0 | 0 |
| Q* | CAGTAA | 0.04545 | 0 | 0 | 0 |
| Q* | CAATAG | 0.1818 | 0 | 0 | 0 |
| Q* | CAATGA | 0.2727 | 0 | 0 | 0 |
| Q* | CAGTGA | 0.1364 | 0 | 0 | 0 |
| Q* | CAATAA | 0.2273 | 0 | 0 | 0 |
| QA | CAAGCG | 0.07207 | 0 | 0 | 0 |
| QA | CAGGCG | 0.05045 | 0 | 0 | 0 |
| QA | CAGGCC | 0.06486 | 0 | 0 | 0 |
| QA | CAAGCT | 0.2523 | 0 | 0 | 0 |
| QA | CAGGCT | 0.09369 | 0 | 0 | 0 |
| QA | CAAGCC | 0.1694 | 0 | 0 | 0 |
| QA | CAGGCA | 0.1045 | 0 | 0 | 0 |
| QA | CAAGCA | 0.1928 | 0 | 0 | 0 |
| QC | CAATGT | 0.5106 | 1 | 1 | 1 |
| QC | CAGTGC | 0.1915 | 0 | 1 | 0 |

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|----|--------|---------|---|---|---|
| QC | CAATGC | 0.1206 | 0 | 1 | 0 |
| QC | CAGTGT | 0.1773 | 0 | 1 | 0 |
| QD | CAGGAT | 0.2084 | 0 | 0 | 0 |
| QD | CAAGAT | 0.4538 | 0 | 0 | 0 |
| QD | CAGGAC | 0.1227 | 0 | 0 | 0 |
| QD | CAAGAC | 0.2151 | 0 | 0 | 0 |
| QE | CAAGAG | 0.2018 | 0 | 0 | 0 |
| QE | CAAGAA | 0.5089 | 0 | 0 | 0 |
| QE | CAGGAA | 0.1878 | 0 | 0 | 0 |
| QE | CAGGAG | 0.1015 | 0 | 0 | 0 |
| QF | CAGTTC | 0.1115 | 0 | 0 | 0 |
| QF | CAATTC | 0.2382 | 0 | 0 | 0 |
| QF | CAGTTT | 0.259 | 0 | 0 | 0 |
| QF | CAATTT | 0.3913 | 0 | 0 | 0 |
| QG | CAAGGT | 0.3243 | 0 | 0 | 0 |
| QG | CAAGGG | 0.104 | 0 | 0 | 0 |
| QG | CAAGGA | 0.1455 | 0 | 0 | 0 |
| QG | CAGGGT | 0.106 | 0 | 0 | 0 |
| QG | CAGGGA | 0.106 | 0 | 0 | 0 |
| QG | CAAGGC | 0.1227 | 0 | 0 | 0 |
| QG | CAGGGC | 0.05821 | 0 | 0 | 0 |
| QG | CAGGGG | 0.03326 | 0 | 0 | 0 |
| QH | CAGCAT | 0.2731 | 0 | 1 | 0 |
| QH | CAGCAC | 0.1218 | 0 | 1 | 0 |
| QH | CAACAC | 0.1639 | 0 | 1 | 0 |
| QH | CAACAT | 0.4412 | 1 | 1 | 1 |
| QI | CAAATT | 0.3381 | 0 | 0 | 0 |
| QI | CAAATC | 0.1534 | 0 | 0 | 0 |
| QI | CAAATA | 0.223 | 0 | 0 | 0 |
| QI | CAGATT | 0.1094 | 0 | 0 | 0 |
| QI | CAGATC | 0.06676 | 0 | 0 | 0 |
| QI | CAGATA | 0.1094 | 0 | 0 | 0 |
| QK | CAAAAA | 0.3851 | 1 | 1 | 1 |
| QK | CAGAAG | 0.1086 | 0 | 1 | 0 |
| QK | CAGAAA | 0.2045 | 0 | 1 | 0 |
| QK | CAAAAG | 0.3018 | 0 | 1 | 0 |
| QL | CAACTC | 0.03015 | 0 | 1 | 0 |
| QL | CAATTA | 0.1826 | 0 | 1 | 0 |
| QL | CAATTG | 0.1947 | 1 | 1 | 1 |
| QL | CAACTA | 0.1068 | 0 | 1 | 0 |
| QL | CAACTT | 0.08096 | 0 | 1 | 0 |
| QL | CAGCTC | 0.01809 | 0 | 1 | 0 |
| QL | CAGCTA | 0.04651 | 0 | 1 | 0 |
| QL | CAGCTG | 0.04048 | 0 | 1 | 0 |
| QL | CAGCTT | 0.03618 | 0 | 1 | 0 |
| QL | CAGTTG | 0.09475 | 0 | 1 | 0 |
| QL | CAACTG | 0.09044 | 0 | 1 | 0 |
| QL | CAGTTA | 0.07838 | 0 | 1 | 0 |
| QM | CAAATG | 0.7761 | 0 | 0 | 0 |
| QM | CAGATG | 0.2239 | 0 | 0 | 0 |
| QN | CAAAAT | 0.4429 | 0 | 0 | 0 |

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|----|--------|---------|---|---|-----|
| QN | CAGAAT | 0.1943 | 0 | 0 | 0 |
| QN | CAAAAC | 0.2743 | 0 | 0 | 0 |
| QN | CAGAAC | 0.08857 | 0 | 0 | 0 |
| QP | CAACCG | 0.1092 | 0 | 1 | 0 |
| QP | CAGCCG | 0.05782 | 0 | 1 | 0 |
| QP | CAGCCT | 0.1113 | 0 | 1 | 0 |
| QP | CAACCA | 0.2827 | 1 | 1 | 1 |
| QP | CAACCT | 0.2163 | 0 | 1 | 0 |
| QP | CAGCCC | 0.04283 | 0 | 1 | 0 |
| QP | CAACCC | 0.06424 | 0 | 1 | 0 |
| QP | CAGCCA | 0.1156 | 0 | 1 | 0 |
| QQ | CAACAA | 0.3851 | 0 | 0 | 0 |
| QQ | CAACAG | 0.2213 | 0 | 0 | 0 |
| QQ | CAGCAA | 0.2262 | 0 | 0 | 0 |
| QQ | CAGCAG | 0.1675 | 0 | 0 | 0 |
| QR | CAACGC | 0.03087 | 0 | 0 | 0 |
| QR | CAACGA | 0.05146 | 0 | 0 | 0 |
| QR | CAACGG | 0.01887 | 0 | 0 | 0 |
| QR | CAACGT | 0.09605 | 0 | 0 | 0 |
| QR | CAAAGG | 0.1887 | 0 | 0 | 0 |
| QR | CAAAGA | 0.3242 | 0 | 0 | 0 |
| QR | CAGCGG | 0.0223 | 0 | 0 | 0 |
| QR | CAGCGC | 0.02916 | 0 | 0 | 0 |
| QR | CAGCGA | 0.02573 | 0 | 0 | 0 |
| QR | CAGAGG | 0.0566 | 0 | 0 | 0 |
| QR | CAGAGA | 0.08919 | 0 | 0 | 0 |
| QR | CAGCGT | 0.0669 | 0 | 0 | 0 |
| QS | CAGTCG | 0.03476 | 0 | 0 | 0 |
| QS | CAGAGC | 0.03129 | 0 | 0 | 0 |
| QS | CAGAGT | 0.04635 | 0 | 0 | 0 |
| QS | CAGTCC | 0.02202 | 0 | 0 | 0 |
| QS | CAAAGC | 0.09154 | 0 | 0 | 0 |
| QS | CAGTCA | 0.06721 | 0 | 0 | 0 |
| QS | CAAAGT | 0.1587 | 0 | 0 | 0 |
| QS | CAGTCT | 0.07416 | 0 | 0 | 0 |
| QS | CAATCC | 0.08343 | 0 | 0 | 0 |
| QS | CAATCA | 0.1286 | 0 | 0 | 0 |
| QS | CAATCT | 0.1866 | 0 | 0 | 0 |
| QS | CAATCG | 0.07532 | 0 | 0 | 0 |
| QT | CAAAC | 0.2958 | 0 | 0 | 0 |
| QT | CAAACA | 0.2377 | 0 | 0 | 0 |
| QT | CAGACT | 0.07985 | 0 | 0 | 0 |
| QT | CAAACC | 0.1071 | 0 | 0 | 0 |
| QT | CAGACG | 0.02722 | 0 | 0 | 0 |
| QT | CAAACG | 0.1089 | 0 | 0 | 0 |
| QT | CAGACC | 0.0363 | 0 | 0 | 0 |
| QT | CAGACA | 0.1071 | 0 | 0 | 0 |
| QV | CAAGTT | 0.2301 | 1 | 2 | 0.5 |
| QV | CAAGTG | 0.1558 | 1 | 2 | 0.5 |
| QV | CAGGTA | 0.05978 | 0 | 2 | 0 |
| QV | CAAGTA | 0.183 | 0 | 2 | 0 |

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|----|--------|----------|---|---|---|
| QV | CAGGTC | 0.0471 | 0 | 2 | 0 |
| QV | CAGGTG | 0.07971 | 0 | 2 | 0 |
| QV | CAGGTT | 0.09964 | 0 | 2 | 0 |
| QV | CAAGTC | 0.1449 | 0 | 2 | 0 |
| QW | CAGTGG | 0.2137 | 0 | 0 | 0 |
| QW | CAATGG | 0.7863 | 0 | 0 | 0 |
| QY | CAGTAC | 0.1799 | 0 | 0 | 0 |
| QY | CAGTAT | 0.2126 | 0 | 0 | 0 |
| QY | CAATAC | 0.2523 | 0 | 0 | 0 |
| QY | CAATAT | 0.3551 | 0 | 0 | 0 |
| R* | CGTTAA | 0.1786 | 0 | 0 | 0 |
| R* | CGGTGA | 0 | 0 | 0 | 0 |
| R* | AGGTAA | 0.1071 | 0 | 0 | 0 |
| R* | CGTTGA | 0.1429 | 0 | 0 | 0 |
| R* | AGGTGA | 0.1071 | 0 | 0 | 0 |
| R* | AGGTAG | 0 | 0 | 0 | 0 |
| R* | CGCTGA | 0 | 0 | 0 | 0 |
| R* | CGATAA | 0.07143 | 0 | 0 | 0 |
| R* | CGTTAG | 0.07143 | 0 | 0 | 0 |
| R* | AGATGA | 0.1071 | 0 | 0 | 0 |
| R* | CGATGA | 0 | 0 | 0 | 0 |
| R* | CGGTAA | 0.03571 | 0 | 0 | 0 |
| R* | AGATAG | 0.07143 | 0 | 0 | 0 |
| R* | AGATAA | 0.03571 | 0 | 0 | 0 |
| R* | CGATAG | 0 | 0 | 0 | 0 |
| R* | CGGTAG | 0 | 0 | 0 | 0 |
| R* | CGCTAG | 0 | 0 | 0 | 0 |
| R* | CGCTAA | 0.07143 | 0 | 0 | 0 |
| RA | CGTGCC | 0.03614 | 0 | 0 | 0 |
| RA | CGTGCG | 0.02108 | 0 | 0 | 0 |
| RA | CGCGCC | 0.006024 | 0 | 0 | 0 |
| RA | CGAGCA | 0.0241 | 0 | 0 | 0 |
| RA | CGCGCT | 0.01506 | 0 | 0 | 0 |
| RA | CGCGCG | 0.003012 | 0 | 0 | 0 |
| RA | CGCGCA | 0.01355 | 0 | 0 | 0 |
| RA | CGTGCA | 0.04819 | 0 | 0 | 0 |
| RA | AGAGCG | 0.0497 | 0 | 0 | 0 |
| RA | AGGGCA | 0.07982 | 0 | 0 | 0 |
| RA | AGAGCA | 0.1566 | 0 | 0 | 0 |
| RA | AGAGCC | 0.08735 | 0 | 0 | 0 |
| RA | AGAGCT | 0.1657 | 0 | 0 | 0 |
| RA | AGGGCC | 0.04066 | 0 | 0 | 0 |
| RA | AGGGCG | 0.02259 | 0 | 0 | 0 |
| RA | CGAGCC | 0.01205 | 0 | 0 | 0 |
| RA | CGAGCT | 0.01657 | 0 | 0 | 0 |
| RA | AGGGCT | 0.113 | 0 | 0 | 0 |
| RA | CGTGCT | 0.06024 | 0 | 0 | 0 |
| RA | CGAGCG | 0.00753 | 0 | 0 | 0 |
| RA | CGGGCT | 0.009036 | 0 | 0 | 0 |
| RA | CGGGCG | 0.003012 | 0 | 0 | 0 |
| RA | CGGGCC | 0.006024 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RA | CGGGCA | 0.003012 | 0 | 0 | 0 |
| RC | AGGTGC | 0.1034 | 0 | 0 | 0 |
| RC | CGGTGC | 0.005747 | 0 | 0 | 0 |
| RC | CGCTGT | 0.02874 | 0 | 0 | 0 |
| RC | CGGTGT | 0.005747 | 0 | 0 | 0 |
| RC | CGTTGC | 0.08621 | 0 | 0 | 0 |
| RC | CGATGT | 0.05172 | 0 | 0 | 0 |
| RC | AGATGT | 0.2184 | 0 | 0 | 0 |
| RC | AGATGC | 0.1264 | 0 | 0 | 0 |
| RC | AGGTGT | 0.1264 | 0 | 0 | 0 |
| RC | CGCTGC | 0.05172 | 0 | 0 | 0 |
| RC | CGTTGT | 0.1379 | 0 | 0 | 0 |
| RC | CGATGC | 0.05747 | 0 | 0 | 0 |
| RD | AGAGAT | 0.3414 | 0 | 0 | 0 |
| RD | AGAGAC | 0.1431 | 0 | 0 | 0 |
| RD | CGAGAC | 0.0255 | 0 | 0 | 0 |
| RD | CGTGAT | 0.0864 | 0 | 0 | 0 |
| RD | CGTGAC | 0.04533 | 0 | 0 | 0 |
| RD | CGAGAT | 0.04108 | 0 | 0 | 0 |
| RD | CGCGAC | 0.01983 | 0 | 0 | 0 |
| RD | AGGGAT | 0.1289 | 0 | 0 | 0 |
| RD | AGGGAC | 0.07649 | 0 | 0 | 0 |
| RD | CGCGAT | 0.04391 | 0 | 0 | 0 |
| RD | CGGGAT | 0.02833 | 0 | 0 | 0 |
| RD | CGGGAC | 0.01983 | 0 | 0 | 0 |
| RE | CGAGAG | 0.02275 | 0 | 1 | 0 |
| RE | CGTGAA | 0.09461 | 0 | 1 | 0 |
| RE | CGGGAG | 0.009581 | 0 | 1 | 0 |
| RE | CGAGAA | 0.03713 | 0 | 1 | 0 |
| RE | CGTGAG | 0.03832 | 0 | 1 | 0 |
| RE | CGCGAG | 0.02635 | 0 | 1 | 0 |
| RE | AGGGAG | 0.07305 | 0 | 1 | 0 |
| RE | CGGGAA | 0.03473 | 0 | 1 | 0 |
| RE | CGCGAA | 0.02156 | 0 | 1 | 0 |
| RE | AGAGAG | 0.1437 | 0 | 1 | 0 |
| RE | AGGGAA | 0.1425 | 0 | 1 | 0 |
| RE | AGAGAA | 0.3557 | 1 | 1 | 1 |
| RF | CGCTTT | 0.02627 | 0 | 0 | 0 |
| RF | AGGTTC | 0.09457 | 0 | 0 | 0 |
| RF | CGTTTT | 0.04553 | 0 | 0 | 0 |
| RF | CGATTC | 0.02102 | 0 | 0 | 0 |
| RF | CGCTTC | 0.01926 | 0 | 0 | 0 |
| RF | CGTTTC | 0.03853 | 0 | 0 | 0 |
| RF | AGGTTT | 0.1786 | 0 | 0 | 0 |
| RF | CGATTT | 0.04553 | 0 | 0 | 0 |
| RF | CGGTTC | 0.01751 | 0 | 0 | 0 |
| RF | CGGTTT | 0.03152 | 0 | 0 | 0 |
| RF | AGATTT | 0.3327 | 0 | 0 | 0 |
| RF | AGATTC | 0.1489 | 0 | 0 | 0 |
| RG | CGAGGT | 0.0254 | 0 | 2 | 0 |
| RG | AGGGGT | 0.0619 | 0 | 2 | 0 |

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|----|--------|----------|---|---|-----|
| RG | CGAGGG | 0.006349 | 0 | 2 | 0 |
| RG | CGGGGT | 0.0127 | 0 | 2 | 0 |
| RG | CGAGGC | 0.009524 | 0 | 2 | 0 |
| RG | AGAGGA | 0.1238 | 1 | 2 | 0.5 |
| RG | AGAGGG | 0.03175 | 0 | 2 | 0 |
| RG | CGGGGC | 0.004762 | 0 | 2 | 0 |
| RG | AGGGGA | 0.03333 | 0 | 2 | 0 |
| RG | CGGGGA | 0.004762 | 0 | 2 | 0 |
| RG | AGGGGG | 0.01746 | 0 | 2 | 0 |
| RG | CGAGGA | 0.01429 | 0 | 2 | 0 |
| RG | AGAGGT | 0.2476 | 1 | 2 | 0.5 |
| RG | AGAGGC | 0.1 | 0 | 2 | 0 |
| RG | CGTGGT | 0.1111 | 0 | 2 | 0 |
| RG | CGCGGG | 0.004762 | 0 | 2 | 0 |
| RG | CGGGGG | 0.003175 | 0 | 2 | 0 |
| RG | CGCGGC | 0.0127 | 0 | 2 | 0 |
| RG | CGCGGT | 0.0127 | 0 | 2 | 0 |
| RG | CGTGGG | 0.04286 | 0 | 2 | 0 |
| RG | AGGGGC | 0.0381 | 0 | 2 | 0 |
| RG | CGTGGG | 0.03175 | 0 | 2 | 0 |
| RG | CGTGGC | 0.03333 | 0 | 2 | 0 |
| RG | CGCGGA | 0.01587 | 0 | 2 | 0 |
| RH | CGGCAC | 0.03106 | 0 | 0 | 0 |
| RH | CGACAT | 0.06832 | 0 | 0 | 0 |
| RH | CGGCAT | 0.03727 | 0 | 0 | 0 |
| RH | CGACAC | 0.01553 | 0 | 0 | 0 |
| RH | CGCCAT | 0.04969 | 0 | 0 | 0 |
| RH | CGTCAT | 0.1056 | 0 | 0 | 0 |
| RH | AGGCAT | 0.1335 | 0 | 0 | 0 |
| RH | CGCCAC | 0.01553 | 0 | 0 | 0 |
| RH | AGACAC | 0.1708 | 0 | 0 | 0 |
| RH | AGGCAC | 0.06832 | 0 | 0 | 0 |
| RH | AGACAT | 0.2702 | 0 | 0 | 0 |
| RH | CGTCAC | 0.03416 | 0 | 0 | 0 |
| RI | AGGATT | 0.0757 | 0 | 0 | 0 |
| RI | AGGATC | 0.04518 | 0 | 0 | 0 |
| RI | AGGATA | 0.07692 | 0 | 0 | 0 |
| RI | CGGATC | 0.003663 | 0 | 0 | 0 |
| RI | AGAATA | 0.1709 | 0 | 0 | 0 |
| RI | AGAATC | 0.1319 | 0 | 0 | 0 |
| RI | AGAATT | 0.2137 | 0 | 0 | 0 |
| RI | CGGATA | 0.01099 | 0 | 0 | 0 |
| RI | CGGATT | 0.01221 | 0 | 0 | 0 |
| RI | CGTATA | 0.03663 | 0 | 0 | 0 |
| RI | CGAATC | 0.01832 | 0 | 0 | 0 |
| RI | CGTATT | 0.0757 | 0 | 0 | 0 |
| RI | CGCATC | 0.009768 | 0 | 0 | 0 |
| RI | CGCATT | 0.01709 | 0 | 0 | 0 |
| RI | CGTATC | 0.0232 | 0 | 0 | 0 |
| RI | CGAATT | 0.02808 | 0 | 0 | 0 |
| RI | CGCATA | 0.01832 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RI | CGAATA | 0.03175 | 0 | 0 | 0 |
| RK | CGTAAA | 0.05545 | 0 | 0 | 0 |
| RK | CGTAAG | 0.04545 | 0 | 0 | 0 |
| RK | AGGAAA | 0.1673 | 0 | 0 | 0 |
| RK | AGAAAG | 0.2218 | 0 | 0 | 0 |
| RK | CGAAAA | 0.03818 | 0 | 0 | 0 |
| RK | AGAAAA | 0.2609 | 0 | 0 | 0 |
| RK | CGGAAG | 0.01091 | 0 | 0 | 0 |
| RK | AGGAAG | 0.09455 | 0 | 0 | 0 |
| RK | CGCAAA | 0.03273 | 0 | 0 | 0 |
| RK | CGCAAG | 0.02545 | 0 | 0 | 0 |
| RK | CGAAAG | 0.02 | 0 | 0 | 0 |
| RK | CGGAAA | 0.02727 | 0 | 0 | 0 |
| RL | CGACTT | 0.01194 | 0 | 1 | 0 |
| RL | AGACTA | 0.07006 | 0 | 1 | 0 |
| RL | CGACTA | 0.01433 | 0 | 1 | 0 |
| RL | CGTTTG | 0.03583 | 0 | 1 | 0 |
| RL | CGATTG | 0.01672 | 0 | 1 | 0 |
| RL | CGACTG | 0.009554 | 0 | 1 | 0 |
| RL | CGACTC | 0.01115 | 0 | 1 | 0 |
| RL | AGGTTA | 0.06688 | 0 | 1 | 0 |
| RL | CGCCTG | 0.004777 | 0 | 1 | 0 |
| RL | CGTCTT | 0.01911 | 0 | 1 | 0 |
| RL | CGTTTA | 0.04299 | 0 | 1 | 0 |
| RL | AGGTTG | 0.06131 | 0 | 1 | 0 |
| RL | CGATTA | 0.02787 | 0 | 1 | 0 |
| RL | CGGTTA | 0.009554 | 0 | 1 | 0 |
| RL | AGACTG | 0.04936 | 0 | 1 | 0 |
| RL | CGTCTG | 0.01115 | 0 | 1 | 0 |
| RL | CGGTTG | 0.01115 | 0 | 1 | 0 |
| RL | CGTCTC | 0.007962 | 0 | 1 | 0 |
| RL | AGACTC | 0.01513 | 0 | 1 | 0 |
| RL | AGATTA | 0.1393 | 1 | 1 | 1 |
| RL | CGCTTA | 0.01592 | 0 | 1 | 0 |
| RL | CGCTTG | 0.01354 | 0 | 1 | 0 |
| RL | CGGCTT | 0.001592 | 0 | 1 | 0 |
| RL | AGGCTA | 0.03503 | 0 | 1 | 0 |
| RL | AGGCTG | 0.02866 | 0 | 1 | 0 |
| RL | AGGCTC | 0.01911 | 0 | 1 | 0 |
| RL | AGATTG | 0.1146 | 0 | 1 | 0 |
| RL | CGCCTA | 0.007962 | 0 | 1 | 0 |
| RL | CGTCTA | 0.01911 | 0 | 1 | 0 |
| RL | CGGCTA | 0.01035 | 0 | 1 | 0 |
| RL | AGACTT | 0.03901 | 0 | 1 | 0 |
| RL | CGCCTT | 0.002389 | 0 | 1 | 0 |
| RL | CGGCTC | 0.004777 | 0 | 1 | 0 |
| RL | CGGCTG | 0.01513 | 0 | 1 | 0 |
| RL | CGCCTC | 0.004777 | 0 | 1 | 0 |
| RL | AGGCTT | 0.03185 | 0 | 1 | 0 |
| RM | CGTATG | 0.1369 | 0 | 0 | 0 |
| RM | AGGATG | 0.1867 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RM | CGGATG | 0.04564 | 0 | 0 | 0 |
| RM | CGCATG | 0.06224 | 0 | 0 | 0 |
| RM | AGAATG | 0.5021 | 0 | 0 | 0 |
| RM | CGAATG | 0.06639 | 0 | 0 | 0 |
| RN | AGAAAT | 0.3197 | 0 | 0 | 0 |
| RN | CGGAAT | 0.04092 | 0 | 0 | 0 |
| RN | CGCAAC | 0.0179 | 0 | 0 | 0 |
| RN | AGAAAC | 0.2136 | 0 | 0 | 0 |
| RN | CGTAAT | 0.06266 | 0 | 0 | 0 |
| RN | CGTAAC | 0.0422 | 0 | 0 | 0 |
| RN | CGCAAT | 0.04476 | 0 | 0 | 0 |
| RN | CGAAAT | 0.04476 | 0 | 0 | 0 |
| RN | AGGAAT | 0.09591 | 0 | 0 | 0 |
| RN | AGGAAC | 0.07928 | 0 | 0 | 0 |
| RN | CGGAAC | 0.01407 | 0 | 0 | 0 |
| RN | CGAAAC | 0.0243 | 0 | 0 | 0 |
| RP | CGACCC | 0.01207 | 0 | 0 | 0 |
| RP | CGACCG | 0.004024 | 0 | 0 | 0 |
| RP | AGGCCG | 0.03018 | 0 | 0 | 0 |
| RP | CGACCT | 0.02213 | 0 | 0 | 0 |
| RP | CGCCCT | 0.01207 | 0 | 0 | 0 |
| RP | CGCCCC | 0.01006 | 0 | 0 | 0 |
| RP | CGGCCG | 0.004024 | 0 | 0 | 0 |
| RP | CGCCCG | 0.006036 | 0 | 0 | 0 |
| RP | AGGCCC | 0.06439 | 0 | 0 | 0 |
| RP | CGCCCA | 0.01408 | 0 | 0 | 0 |
| RP | CGACCA | 0.01811 | 0 | 0 | 0 |
| RP | AGGCCT | 0.06841 | 0 | 0 | 0 |
| RP | AGGCCA | 0.1247 | 0 | 0 | 0 |
| RP | AGACCG | 0.06237 | 0 | 0 | 0 |
| RP | AGACCC | 0.0503 | 0 | 0 | 0 |
| RP | AGACCA | 0.2173 | 0 | 0 | 0 |
| RP | CGGCCT | 0.01006 | 0 | 0 | 0 |
| RP | CGTCCA | 0.04024 | 0 | 0 | 0 |
| RP | AGACCT | 0.1348 | 0 | 0 | 0 |
| RP | CGTCCC | 0.01207 | 0 | 0 | 0 |
| RP | CGTCCG | 0.01811 | 0 | 0 | 0 |
| RP | CGTCCT | 0.03622 | 0 | 0 | 0 |
| RP | CGGCCC | 0.006036 | 0 | 0 | 0 |
| RP | CGGCCA | 0.02213 | 0 | 0 | 0 |
| RQ | AGACAA | 0.2986 | 0 | 0 | 0 |
| RQ | CGGCAA | 0.01403 | 0 | 0 | 0 |
| RQ | CGGCAG | 0.03006 | 0 | 0 | 0 |
| RQ | AGACAG | 0.1623 | 0 | 0 | 0 |
| RQ | CGCCAG | 0.02405 | 0 | 0 | 0 |
| RQ | AGGCAA | 0.1283 | 0 | 0 | 0 |
| RQ | AGGCAG | 0.07415 | 0 | 0 | 0 |
| RQ | CGTCAA | 0.1242 | 0 | 0 | 0 |
| RQ | CGCCAA | 0.04208 | 0 | 0 | 0 |
| RQ | CGACAA | 0.03206 | 0 | 0 | 0 |
| RQ | CGTCAG | 0.04208 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RQ | CGACAG | 0.02806 | 0 | 0 | 0 |
| RR | CGAAGA | 0.02469 | 0 | 1 | 0 |
| RR | AGAAGA | 0.3173 | 1 | 1 | 1 |
| RR | CGTCGA | 0.008642 | 0 | 1 | 0 |
| RR | CGACGA | 0.003704 | 0 | 1 | 0 |
| RR | CGTAGG | 0.01358 | 0 | 1 | 0 |
| RR | CGAAGG | 0.01358 | 0 | 1 | 0 |
| RR | CGCAGA | 0.009877 | 0 | 1 | 0 |
| RR | AGACGT | 0.04321 | 0 | 1 | 0 |
| RR | CGCCGA | 0.007407 | 0 | 1 | 0 |
| RR | CGCCGT | 0.01728 | 0 | 1 | 0 |
| RR | CGCCGC | 0.001235 | 0 | 1 | 0 |
| RR | AGACGG | 0.01358 | 0 | 1 | 0 |
| RR | CGCAGG | 0.006173 | 0 | 1 | 0 |
| RR | AGACGA | 0.02346 | 0 | 1 | 0 |
| RR | CGCCGG | 0.001235 | 0 | 1 | 0 |
| RR | AGACGC | 0.01728 | 0 | 1 | 0 |
| RR | CGTAGA | 0.03951 | 0 | 1 | 0 |
| RR | CGTCGC | 0.01358 | 0 | 1 | 0 |
| RR | AGGCGG | 0.01358 | 0 | 1 | 0 |
| RR | CGGCGA | 0.002469 | 0 | 1 | 0 |
| RR | CGACGC | 0 | 0 | 1 | 0 |
| RR | CGGCGC | 0.002469 | 0 | 1 | 0 |
| RR | AGGCGC | 0.009877 | 0 | 1 | 0 |
| RR | AGGCGA | 0.01975 | 0 | 1 | 0 |
| RR | CGGAGG | 0.008642 | 0 | 1 | 0 |
| RR | AGGAGG | 0.04691 | 0 | 1 | 0 |
| RR | CGGAGA | 0.01235 | 0 | 1 | 0 |
| RR | CGGCGG | 0.001235 | 0 | 1 | 0 |
| RR | CGGCGT | 0.003704 | 0 | 1 | 0 |
| RR | CGTCGT | 0.03333 | 0 | 1 | 0 |
| RR | CGACGG | 0.002469 | 0 | 1 | 0 |
| RR | CGTCGG | 0.01235 | 0 | 1 | 0 |
| RR | CGACGT | 0.006173 | 0 | 1 | 0 |
| RR | AGGAGA | 0.1099 | 0 | 1 | 0 |
| RR | AGGCGT | 0.02222 | 0 | 1 | 0 |
| RR | AGAAGG | 0.1173 | 0 | 1 | 0 |
| RS | AGGAGC | 0.01644 | 0 | 0 | 0 |
| RS | CGGTCC | 0.009132 | 0 | 0 | 0 |
| RS | AGGTCT | 0.04292 | 0 | 0 | 0 |
| RS | AGGTCC | 0.02374 | 0 | 0 | 0 |
| RS | AGGTCA | 0.06393 | 0 | 0 | 0 |
| RS | AGGTCC | 0.02922 | 0 | 0 | 0 |
| RS | AGGAGT | 0.03379 | 0 | 0 | 0 |
| RS | CGTAGT | 0.01644 | 0 | 0 | 0 |
| RS | CGTTCC | 0.01279 | 0 | 0 | 0 |
| RS | CGTTCC | 0.02192 | 0 | 0 | 0 |
| RS | CGTTCA | 0.03014 | 0 | 0 | 0 |
| RS | CGATCT | 0.02283 | 0 | 0 | 0 |
| RS | CGTTCT | 0.04566 | 0 | 0 | 0 |
| RS | CGGAGT | 0.009132 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RS | CGCTCG | 0.007306 | 0 | 0 | 0 |
| RS | CGCTCT | 0.02009 | 0 | 0 | 0 |
| RS | CGGAGC | 0.006393 | 0 | 0 | 0 |
| RS | CGATCG | 0.008219 | 0 | 0 | 0 |
| RS | CGATCC | 0.006393 | 0 | 0 | 0 |
| RS | CGCAGC | 0.01553 | 0 | 0 | 0 |
| RS | CGCAGT | 0.006393 | 0 | 0 | 0 |
| RS | CGCTCC | 0.009132 | 0 | 0 | 0 |
| RS | CGGTCA | 0.009132 | 0 | 0 | 0 |
| RS | CGCTCA | 0.01553 | 0 | 0 | 0 |
| RS | CGTAGC | 0.001826 | 0 | 0 | 0 |
| RS | CGATCA | 0.01553 | 0 | 0 | 0 |
| RS | CGAAGT | 0.02192 | 0 | 0 | 0 |
| RS | CGAAGC | 0.008219 | 0 | 0 | 0 |
| RS | CGGTCC | 0.003653 | 0 | 0 | 0 |
| RS | CGGTCT | 0.01553 | 0 | 0 | 0 |
| RS | AGATCT | 0.1041 | 0 | 0 | 0 |
| RS | AGATCG | 0.0411 | 0 | 0 | 0 |
| RS | AGATCC | 0.05662 | 0 | 0 | 0 |
| RS | AGATCA | 0.1114 | 0 | 0 | 0 |
| RS | AGAAGC | 0.05114 | 0 | 0 | 0 |
| RS | AGAAGT | 0.08676 | 0 | 0 | 0 |
| RT | CGAACT | 0.01556 | 0 | 0 | 0 |
| RT | CGAACG | 0.01132 | 0 | 0 | 0 |
| RT | AGAACG | 0.06082 | 0 | 0 | 0 |
| RT | CGGACC | 0.004243 | 0 | 0 | 0 |
| RT | CGCACG | 0.007072 | 0 | 0 | 0 |
| RT | AGAACA | 0.1556 | 0 | 0 | 0 |
| RT | CGAACC | 0.02122 | 0 | 0 | 0 |
| RT | CGTACT | 0.04809 | 0 | 0 | 0 |
| RT | CGTACC | 0.03112 | 0 | 0 | 0 |
| RT | CGTACA | 0.0297 | 0 | 0 | 0 |
| RT | AGAACT | 0.1711 | 0 | 0 | 0 |
| RT | CGTACG | 0.02122 | 0 | 0 | 0 |
| RT | CGAACA | 0.02546 | 0 | 0 | 0 |
| RT | CGCACT | 0.01414 | 0 | 0 | 0 |
| RT | CGGACA | 0.01273 | 0 | 0 | 0 |
| RT | AGAACC | 0.1061 | 0 | 0 | 0 |
| RT | AGGACA | 0.06931 | 0 | 0 | 0 |
| RT | CGCACC | 0.01414 | 0 | 0 | 0 |
| RT | CGGACT | 0.004243 | 0 | 0 | 0 |
| RT | AGGACC | 0.03253 | 0 | 0 | 0 |
| RT | AGGACG | 0.03819 | 0 | 0 | 0 |
| RT | CGCACA | 0.0198 | 0 | 0 | 0 |
| RT | AGGACT | 0.07921 | 0 | 0 | 0 |
| RT | CGGACG | 0.007072 | 0 | 0 | 0 |
| RV | CGCGTT | 0.02336 | 0 | 0 | 0 |
| RV | CGGGTG | 0.0109 | 0 | 0 | 0 |
| RV | CGCGTC | 0.01713 | 0 | 0 | 0 |
| RV | CGGGTT | 0.01246 | 0 | 0 | 0 |
| RV | CGAGTT | 0.02181 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| RV | CGGGTC | 0.004673 | 0 | 0 | 0 |
| RV | CGGGTA | 0.01402 | 0 | 0 | 0 |
| RV | CGAGTA | 0.01558 | 0 | 0 | 0 |
| RV | AGAGTG | 0.06854 | 0 | 0 | 0 |
| RV | AGAGTT | 0.176 | 0 | 0 | 0 |
| RV | CGCGTA | 0.004673 | 0 | 0 | 0 |
| RV | CGTGTA | 0.03427 | 0 | 0 | 0 |
| RV | CGTGTG | 0.03894 | 0 | 0 | 0 |
| RV | AGAGTC | 0.09657 | 0 | 0 | 0 |
| RV | CGAGTC | 0.01402 | 0 | 0 | 0 |
| RV | CGTGTC | 0.0405 | 0 | 0 | 0 |
| RV | CGTGTT | 0.08411 | 0 | 0 | 0 |
| RV | AGAGTA | 0.1184 | 0 | 0 | 0 |
| RV | CGAGTG | 0.01713 | 0 | 0 | 0 |
| RV | CGCGTG | 0.007788 | 0 | 0 | 0 |
| RV | AGGGTA | 0.05452 | 0 | 0 | 0 |
| RV | AGGGTC | 0.02336 | 0 | 0 | 0 |
| RV | AGGGTT | 0.06386 | 0 | 0 | 0 |
| RV | AGGGTG | 0.03738 | 0 | 0 | 0 |
| RW | AGATGG | 0.5185 | 0 | 0 | 0 |
| RW | AGGTGG | 0.1259 | 0 | 0 | 0 |
| RW | CGCTGG | 0.07407 | 0 | 0 | 0 |
| RW | CGATGG | 0.06667 | 0 | 0 | 0 |
| RW | CGTTGG | 0.2 | 0 | 0 | 0 |
| RW | CGGTGG | 0.01481 | 0 | 0 | 0 |
| RY | CGGTAC | 0.02484 | 0 | 0 | 0 |
| RY | CGGTAT | 0.02692 | 0 | 0 | 0 |
| RY | AGGTAT | 0.08075 | 0 | 0 | 0 |
| RY | AGGTAC | 0.08489 | 0 | 0 | 0 |
| RY | CGCTAT | 0.04762 | 0 | 0 | 0 |
| RY | CGATAT | 0.04969 | 0 | 0 | 0 |
| RY | CGTTAT | 0.1139 | 0 | 0 | 0 |
| RY | CGATAC | 0.04762 | 0 | 0 | 0 |
| RY | CGTTAC | 0.07246 | 0 | 0 | 0 |
| RY | AGATAT | 0.234 | 0 | 0 | 0 |
| RY | CGCTAC | 0.06004 | 0 | 0 | 0 |
| RY | AGATAC | 0.1573 | 0 | 0 | 0 |
| S* | AGTTGA | 0.05128 | 0 | 0 | 0 |
| S* | TCATAA | 0.2051 | 0 | 0 | 0 |
| S* | AGTTAG | 0.07692 | 0 | 0 | 0 |
| S* | AGTTAA | 0.1026 | 0 | 0 | 0 |
| S* | TCGTAG | 0 | 0 | 0 | 0 |
| S* | TCGTAA | 0.1026 | 0 | 0 | 0 |
| S* | TCATGA | 0.02564 | 0 | 0 | 0 |
| S* | TCCTAA | 0 | 0 | 0 | 0 |
| S* | AGCTAG | 0 | 0 | 0 | 0 |
| S* | AGCTAA | 0.05128 | 0 | 0 | 0 |
| S* | TCCTGA | 0.05128 | 0 | 0 | 0 |
| S* | TCCTAG | 0 | 0 | 0 | 0 |
| S* | TCATAG | 0.02564 | 0 | 0 | 0 |
| S* | TCGTGA | 0 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| S* | AGCTGA | 0.02564 | 0 | 0 | 0 |
| S* | TCTTAG | 0.05128 | 0 | 0 | 0 |
| S* | TCTTGA | 0.05128 | 0 | 0 | 0 |
| S* | TCTTAA | 0.1795 | 0 | 0 | 0 |
| SA | TCTGCT | 0.1228 | 0 | 0 | 0 |
| SA | TCGGCA | 0.02312 | 0 | 0 | 0 |
| SA | TCTGCG | 0.03685 | 0 | 0 | 0 |
| SA | TCCGCG | 0.01084 | 0 | 0 | 0 |
| SA | AGCGCA | 0.02673 | 0 | 0 | 0 |
| SA | AGTGCG | 0.02601 | 0 | 0 | 0 |
| SA | AGCGCG | 0.01012 | 0 | 0 | 0 |
| SA | TCCGCA | 0.02601 | 0 | 0 | 0 |
| SA | AGCGCC | 0.03685 | 0 | 0 | 0 |
| SA | TCGGCC | 0.01662 | 0 | 0 | 0 |
| SA | TCCGCC | 0.03324 | 0 | 0 | 0 |
| SA | TCAGCT | 0.06647 | 0 | 0 | 0 |
| SA | AGTGCA | 0.05853 | 0 | 0 | 0 |
| SA | TCGGCT | 0.0224 | 0 | 0 | 0 |
| SA | AGTGCC | 0.04118 | 0 | 0 | 0 |
| SA | TCTGCC | 0.06936 | 0 | 0 | 0 |
| SA | AGTGCT | 0.07587 | 0 | 0 | 0 |
| SA | AGCGCT | 0.03902 | 0 | 0 | 0 |
| SA | TCTGCA | 0.09032 | 0 | 0 | 0 |
| SA | TCGGCG | 0.01012 | 0 | 0 | 0 |
| SA | TCCGCT | 0.03613 | 0 | 0 | 0 |
| SA | TCAGCC | 0.03179 | 0 | 0 | 0 |
| SA | TCAGCA | 0.06431 | 0 | 0 | 0 |
| SA | TCAGCG | 0.02529 | 0 | 0 | 0 |
| SC | TCATGT | 0.131 | 0 | 0 | 0 |
| SC | TCATGC | 0.1111 | 0 | 0 | 0 |
| SC | TCTTGT | 0.1746 | 0 | 0 | 0 |
| SC | TCGTGC | 0.01587 | 0 | 0 | 0 |
| SC | AGCTGC | 0.05159 | 0 | 0 | 0 |
| SC | TCCTGT | 0.09524 | 0 | 0 | 0 |
| SC | AGTTGC | 0.06349 | 0 | 0 | 0 |
| SC | TCTTGC | 0.06746 | 0 | 0 | 0 |
| SC | AGCTGT | 0.06349 | 0 | 0 | 0 |
| SC | TCGTGT | 0.05159 | 0 | 0 | 0 |
| SC | TCCTGC | 0.04762 | 0 | 0 | 0 |
| SC | AGTTGT | 0.127 | 0 | 0 | 0 |
| SD | TCTGAT | 0.1772 | 0 | 0 | 0 |
| SD | AGCGAC | 0.03132 | 0 | 0 | 0 |
| SD | TCAGAC | 0.07487 | 0 | 0 | 0 |
| SD | TCTGAC | 0.09778 | 0 | 0 | 0 |
| SD | TCGGAC | 0.02521 | 0 | 0 | 0 |
| SD | TCCGAC | 0.02827 | 0 | 0 | 0 |
| SD | TCGGAT | 0.05118 | 0 | 0 | 0 |
| SD | AGTGAC | 0.0741 | 0 | 0 | 0 |
| SD | TCCGAT | 0.07487 | 0 | 0 | 0 |
| SD | AGTGAT | 0.1566 | 0 | 0 | 0 |
| SD | TCAGAT | 0.1314 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| SD | AGCGAT | 0.07716 | 0 | 0 | 0 |
| SE | TCTGAG | 0.06772 | 0 | 0 | 0 |
| SE | TCGGAG | 0.02935 | 0 | 0 | 0 |
| SE | TCGGAA | 0.05568 | 0 | 0 | 0 |
| SE | TCTGAA | 0.2002 | 0 | 0 | 0 |
| SE | TCCGAA | 0.06998 | 0 | 0 | 0 |
| SE | AGTGAG | 0.06922 | 0 | 0 | 0 |
| SE | TCAGAG | 0.06095 | 0 | 0 | 0 |
| SE | TCCGAG | 0.02935 | 0 | 0 | 0 |
| SE | AGCGAG | 0.04289 | 0 | 0 | 0 |
| SE | AGCGAA | 0.09105 | 0 | 0 | 0 |
| SE | AGTGAA | 0.1505 | 0 | 0 | 0 |
| SE | TCAGAA | 0.1332 | 0 | 0 | 0 |
| SF | AGTTTC | 0.06403 | 0 | 0 | 0 |
| SF | AGTTTT | 0.1149 | 0 | 0 | 0 |
| SF | TCATTT | 0.1478 | 0 | 0 | 0 |
| SF | AGCTTT | 0.07156 | 0 | 0 | 0 |
| SF | TCTTTT | 0.1347 | 0 | 0 | 0 |
| SF | TCCTTC | 0.06591 | 0 | 0 | 0 |
| SF | TCCTTT | 0.09605 | 0 | 0 | 0 |
| SF | TCATTC | 0.07815 | 0 | 0 | 0 |
| SF | TCGTTT | 0.06403 | 0 | 0 | 0 |
| SF | TCGTTC | 0.03955 | 0 | 0 | 0 |
| SF | TCTTTC | 0.09134 | 0 | 0 | 0 |
| SF | AGCTTC | 0.03202 | 0 | 0 | 0 |
| SG | TCAGGT | 0.08436 | 0 | 0 | 0 |
| SG | TCCGGA | 0.02621 | 0 | 0 | 0 |
| SG | TCCGGG | 0.01229 | 0 | 0 | 0 |
| SG | TCCGGT | 0.05405 | 0 | 0 | 0 |
| SG | TCAGGG | 0.01556 | 0 | 0 | 0 |
| SG | TCCGGC | 0.02375 | 0 | 0 | 0 |
| SG | AGCGGT | 0.04095 | 0 | 0 | 0 |
| SG | AGCGGA | 0.03767 | 0 | 0 | 0 |
| SG | TCGGGA | 0.01392 | 0 | 0 | 0 |
| SG | AGTGGC | 0.03276 | 0 | 0 | 0 |
| SG | AGTGGG | 0.02948 | 0 | 0 | 0 |
| SG | AGTGGA | 0.06061 | 0 | 0 | 0 |
| SG | TCTGGG | 0.0303 | 0 | 0 | 0 |
| SG | TCTGGT | 0.1548 | 0 | 0 | 0 |
| SG | AGTGGT | 0.09091 | 0 | 0 | 0 |
| SG | TCGGGT | 0.02867 | 0 | 0 | 0 |
| SG | TCAGGA | 0.05569 | 0 | 0 | 0 |
| SG | AGCGGC | 0.02867 | 0 | 0 | 0 |
| SG | TCGGGC | 0.01147 | 0 | 0 | 0 |
| SG | TCGGGG | 0.007371 | 0 | 0 | 0 |
| SG | TCAGGC | 0.03522 | 0 | 0 | 0 |
| SG | AGCGGG | 0.01802 | 0 | 0 | 0 |
| SG | TCTGGC | 0.04668 | 0 | 0 | 0 |
| SG | TCTGGA | 0.06061 | 0 | 0 | 0 |
| SH | TCACAT | 0.1507 | 0 | 1 | 0 |
| SH | AGTCAT | 0.07537 | 0 | 1 | 0 |

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|----|--------|----------|---|---|--------|
| SH | TCACAC | 0.05882 | 0 | 1 | 0 |
| SH | TCTCAT | 0.1599 | 0 | 1 | 0 |
| SH | AGCCAT | 0.07353 | 0 | 1 | 0 |
| SH | TCCCAC | 0.05515 | 0 | 1 | 0 |
| SH | TCCCAT | 0.09743 | 0 | 1 | 0 |
| SH | TCTCAC | 0.1029 | 0 | 1 | 0 |
| SH | AGTCAC | 0.05882 | 1 | 1 | 1 |
| SH | AGCCAC | 0.02941 | 0 | 1 | 0 |
| SH | TCGCAC | 0.06801 | 0 | 1 | 0 |
| SH | TCGCAT | 0.06985 | 0 | 1 | 0 |
| SI | TCCATA | 0.05714 | 0 | 1 | 0 |
| SI | AGCATT | 0.05079 | 0 | 1 | 0 |
| SI | TCAATT | 0.08571 | 0 | 1 | 0 |
| SI | AGCATA | 0.0419 | 0 | 1 | 0 |
| SI | TCTATC | 0.06159 | 0 | 1 | 0 |
| SI | AGCATC | 0.02794 | 0 | 1 | 0 |
| SI | TCTATA | 0.06413 | 0 | 1 | 0 |
| SI | AGTATC | 0.03556 | 0 | 1 | 0 |
| SI | TCCATT | 0.09714 | 0 | 1 | 0 |
| SI | TCAATA | 0.06159 | 0 | 1 | 0 |
| SI | AGTATT | 0.06603 | 0 | 1 | 0 |
| SI | TCTATT | 0.1029 | 1 | 1 | 1 |
| SI | AGTATA | 0.0546 | 0 | 1 | 0 |
| SI | TCGATT | 0.03746 | 0 | 1 | 0 |
| SI | TCAATC | 0.04889 | 0 | 1 | 0 |
| SI | TCCATC | 0.06349 | 0 | 1 | 0 |
| SI | TCGATA | 0.02603 | 0 | 1 | 0 |
| SI | TCGATC | 0.01714 | 0 | 1 | 0 |
| SK | TCAAAG | 0.08836 | 0 | 0 | 0 |
| SK | TCCAAG | 0.07831 | 0 | 0 | 0 |
| SK | TCGAAA | 0.07037 | 0 | 0 | 0 |
| SK | TCCAAA | 0.1217 | 0 | 0 | 0 |
| SK | AGTAAA | 0.1079 | 0 | 0 | 0 |
| SK | TCTAAG | 0.07566 | 0 | 0 | 0 |
| SK | TCAAAA | 0.1254 | 0 | 0 | 0 |
| SK | AGCAAA | 0.08095 | 0 | 0 | 0 |
| SK | AGTAAG | 0.04339 | 0 | 0 | 0 |
| SK | AGCAAG | 0.04127 | 0 | 0 | 0 |
| SK | TCGAAG | 0.04868 | 0 | 0 | 0 |
| SK | TCTAAA | 0.118 | 0 | 0 | 0 |
| SL | TCACTG | 0.02916 | 0 | 3 | 0 |
| SL | AGTCTA | 0.009863 | 0 | 3 | 0 |
| SL | TCTCTT | 0.03259 | 0 | 3 | 0 |
| SL | TCTCTC | 0.01329 | 0 | 3 | 0 |
| SL | AGCCTA | 0.01072 | 0 | 3 | 0 |
| SL | TCTTTA | 0.08491 | 1 | 3 | 0.3333 |
| SL | TCGTTG | 0.03173 | 0 | 3 | 0 |
| SL | AGTCTT | 0.02316 | 0 | 3 | 0 |
| SL | TCTTTG | 0.09134 | 0 | 3 | 0 |
| SL | TCTCTA | 0.03516 | 0 | 3 | 0 |
| SL | TCTCTG | 0.02959 | 0 | 3 | 0 |

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|----|--------|----------|---|---|--------|
| SL | AGTCTG | 0.01201 | 0 | 3 | 0 |
| SL | TCACTT | 0.03645 | 0 | 3 | 0 |
| SL | AGTCTC | 0.006432 | 0 | 3 | 0 |
| SL | TCCCTG | 0.01587 | 0 | 3 | 0 |
| SL | AGCCTG | 0.01072 | 0 | 3 | 0 |
| SL | AGCCTC | 0.004717 | 0 | 3 | 0 |
| SL | AGCTTA | 0.02101 | 0 | 3 | 0 |
| SL | AGTTTG | 0.04331 | 0 | 3 | 0 |
| SL | TCCTTA | 0.03774 | 0 | 3 | 0 |
| SL | AGCCTT | 0.01286 | 0 | 3 | 0 |
| SL | TCGCTT | 0.01372 | 0 | 3 | 0 |
| SL | TCGCTA | 0.02058 | 0 | 3 | 0 |
| SL | AGCTTG | 0.02015 | 0 | 3 | 0 |
| SL | TCGCTC | 0.005575 | 0 | 3 | 0 |
| SL | TCGCTG | 0.01458 | 0 | 3 | 0 |
| SL | TCGTTA | 0.03473 | 0 | 3 | 0 |
| SL | AGTTTA | 0.04545 | 0 | 3 | 0 |
| SL | TCCTTG | 0.03431 | 0 | 3 | 0 |
| SL | TCATTA | 0.06861 | 0 | 3 | 0 |
| SL | TCACTA | 0.02702 | 0 | 3 | 0 |
| SL | TCCCTA | 0.02058 | 1 | 3 | 0.3333 |
| SL | TCATTG | 0.06346 | 1 | 3 | 0.3333 |
| SL | TCACTC | 0.01715 | 0 | 3 | 0 |
| SL | TCCCTT | 0.01544 | 0 | 3 | 0 |
| SL | TCCCTC | 0.006003 | 0 | 3 | 0 |
| SM | TCGATG | 0.1201 | 0 | 0 | 0 |
| SM | AGTATG | 0.1339 | 0 | 0 | 0 |
| SM | TCAATG | 0.2697 | 0 | 0 | 0 |
| SM | AGCATG | 0.08268 | 0 | 0 | 0 |
| SM | TCTATG | 0.2205 | 0 | 0 | 0 |
| SM | TCCATG | 0.1732 | 0 | 0 | 0 |
| SN | TCCAAC | 0.0741 | 0 | 0 | 0 |
| SN | TCAAAT | 0.1278 | 0 | 0 | 0 |
| SN | TCAAAC | 0.07585 | 0 | 0 | 0 |
| SN | TCGAAC | 0.03092 | 0 | 0 | 0 |
| SN | TCCAAT | 0.1068 | 0 | 0 | 0 |
| SN | TCTAAC | 0.07818 | 0 | 0 | 0 |
| SN | TCGAAT | 0.06418 | 0 | 0 | 0 |
| SN | TCTAAT | 0.1319 | 0 | 0 | 0 |
| SN | AGTAAT | 0.1039 | 0 | 0 | 0 |
| SN | AGTAAC | 0.06359 | 0 | 0 | 0 |
| SN | AGCAAC | 0.06184 | 0 | 0 | 0 |
| SN | AGCAAT | 0.0811 | 0 | 0 | 0 |
| SP | TCGCCG | 0.0178 | 0 | 0 | 0 |
| SP | TCGCC | 0.01695 | 0 | 0 | 0 |
| SP | TCGCCA | 0.04492 | 0 | 0 | 0 |
| SP | TCGCCT | 0.04746 | 0 | 0 | 0 |
| SP | TCACCC | 0.03814 | 0 | 0 | 0 |
| SP | TCACCT | 0.08136 | 0 | 0 | 0 |
| SP | TCACCG | 0.02542 | 0 | 0 | 0 |
| SP | AGTCCA | 0.03559 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| SP | AGTCCC | 0.01864 | 0 | 0 | 0 |
| SP | TCCCCG | 0.01271 | 0 | 0 | 0 |
| SP | AGCCCG | 0.008475 | 0 | 0 | 0 |
| SP | AGCCCC | 0.01525 | 0 | 0 | 0 |
| SP | AGCCCA | 0.0339 | 0 | 0 | 0 |
| SP | AGCCCT | 0.02034 | 0 | 0 | 0 |
| SP | AGTCCT | 0.03305 | 0 | 0 | 0 |
| SP | TCCCCC | 0.02119 | 0 | 0 | 0 |
| SP | TCCCCT | 0.02797 | 0 | 0 | 0 |
| SP | AGTCCG | 0.01525 | 0 | 0 | 0 |
| SP | TCCCCA | 0.0322 | 0 | 0 | 0 |
| SP | TCACCA | 0.08983 | 0 | 0 | 0 |
| SP | TCTCCA | 0.161 | 0 | 0 | 0 |
| SP | TCTCCC | 0.06271 | 0 | 0 | 0 |
| SP | TCTCCG | 0.04237 | 0 | 0 | 0 |
| SP | TCTCCT | 0.09746 | 0 | 0 | 0 |
| SQ | AGTCAG | 0.02422 | 0 | 0 | 0 |
| SQ | TCACAA | 0.1604 | 0 | 0 | 0 |
| SQ | TCACAG | 0.07064 | 0 | 0 | 0 |
| SQ | AGTCAA | 0.08375 | 0 | 0 | 0 |
| SQ | TCGCAG | 0.04743 | 0 | 0 | 0 |
| SQ | TCGCAA | 0.07972 | 0 | 0 | 0 |
| SQ | TCTCAG | 0.09082 | 0 | 0 | 0 |
| SQ | TCTCAA | 0.2462 | 0 | 0 | 0 |
| SQ | AGCCAG | 0.01615 | 0 | 0 | 0 |
| SQ | TCCCAA | 0.09384 | 0 | 0 | 0 |
| SQ | TCCCAG | 0.03935 | 0 | 0 | 0 |
| SQ | AGCCAA | 0.04743 | 0 | 0 | 0 |
| SR | AGCCGG | 0.005952 | 0 | 0 | 0 |
| SR | TCTCGA | 0.02806 | 0 | 0 | 0 |
| SR | AGCCGC | 0.008503 | 0 | 0 | 0 |
| SR | TCGCGA | 0.008503 | 0 | 0 | 0 |
| SR | TCGCGC | 0.006803 | 0 | 0 | 0 |
| SR | TCGCGT | 0.006803 | 0 | 0 | 0 |
| SR | AGTCGT | 0.01786 | 0 | 0 | 0 |
| SR | TCTCGC | 0.02466 | 0 | 0 | 0 |
| SR | TCCCGT | 0.02296 | 0 | 0 | 0 |
| SR | TCCCGG | 0.005102 | 0 | 0 | 0 |
| SR | TCCCGC | 0.0119 | 0 | 0 | 0 |
| SR | AGCCGA | 0.005952 | 0 | 0 | 0 |
| SR | TCAAGA | 0.1131 | 0 | 0 | 0 |
| SR | AGCAGA | 0.04422 | 0 | 0 | 0 |
| SR | AGCAGG | 0.03231 | 0 | 0 | 0 |
| SR | TCAAGG | 0.05102 | 0 | 0 | 0 |
| SR | TCTCGT | 0.05357 | 0 | 0 | 0 |
| SR | AGTCGA | 0.008503 | 0 | 0 | 0 |
| SR | TCTCGG | 0.0102 | 0 | 0 | 0 |
| SR | AGCCGT | 0.0119 | 0 | 0 | 0 |
| SR | TCGAGA | 0.05867 | 0 | 0 | 0 |
| SR | AGTAGG | 0.03316 | 0 | 0 | 0 |
| SR | TCCCGA | 0.009354 | 0 | 0 | 0 |

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|----|---------|----------|---|---|---|
| SR | AGTCGC | 0.0119 | 0 | 0 | 0 |
| SR | AGTCGG | 0.008503 | 0 | 0 | 0 |
| SR | TCGAGG | 0.03146 | 0 | 0 | 0 |
| SR | TCGCGG | 0.002551 | 0 | 0 | 0 |
| SR | TCTAGA | 0.08418 | 0 | 0 | 0 |
| SR | TCCAGA | 0.07823 | 0 | 0 | 0 |
| SR | TCTAGG | 0.04252 | 0 | 0 | 0 |
| SR | AGTAGA | 0.06378 | 0 | 0 | 0 |
| SR | TCACGC | 0.007653 | 0 | 0 | 0 |
| SR | TCCAGG | 0.02806 | 0 | 0 | 0 |
| SR | TCACGT | 0.01701 | 0 | 0 | 0 |
| SR | TCACGG | 0.007653 | 0 | 0 | 0 |
| SR | TCACGA | 0.03741 | 0 | 0 | 0 |
| SS | TCAAGC | 0.02052 | 0 | 0 | 0 |
| SS | AGTTCT | 0.03431 | 0 | 0 | 0 |
| SS | AGCTCT | 0.0222 | 0 | 0 | 0 |
| SS | TCCAGT | 0.02388 | 0 | 0 | 0 |
| SS | TCATCT | 0.05382 | 0 | 0 | 0 |
| SS | TCATCG | 0.02422 | 0 | 0 | 0 |
| SS | TCCTCG | 0.01413 | 0 | 0 | 0 |
| SS | TCCTCC | 0.02388 | 0 | 0 | 0 |
| SS | TCCTCA | 0.02893 | 0 | 0 | 0 |
| SS | TCTTCA | 0.05752 | 0 | 0 | 0 |
| SS | TCCTCT | 0.04205 | 0 | 0 | 0 |
| SS | TCTTCC | 0.05012 | 0 | 0 | 0 |
| SS | TCGTCT | 0.01884 | 0 | 0 | 0 |
| SS | TCATCC | 0.03565 | 0 | 0 | 0 |
| SS | TCATCA | 0.05886 | 0 | 0 | 0 |
| SS | AGTAGT | 0.02725 | 0 | 0 | 0 |
| SS | TCGTCT | 0.007736 | 0 | 0 | 0 |
| SS | AGTAGC | 0.02052 | 0 | 0 | 0 |
| SS | TCCAGC | 0.0222 | 0 | 0 | 0 |
| SS | TCTTCG | 0.02825 | 0 | 0 | 0 |
| SS | TCAAGT | 0.03364 | 0 | 0 | 0 |
| SS | AGCAGC | 0.01715 | 0 | 0 | 0 |
| SS | TCTTCT | 0.08241 | 0 | 0 | 0 |
| SS | AGTTCA | 0.037 | 0 | 0 | 0 |
| SS | AGTTCC | 0.01884 | 0 | 0 | 0 |
| SS | TCTAGT | 0.0333 | 0 | 0 | 0 |
| SS | TCGAGC | 0.009418 | 0 | 0 | 0 |
| SS | AGCAGT | 0.02321 | 0 | 0 | 0 |
| SS | TCGTCA | 0.01951 | 0 | 0 | 0 |
| SS | TCGTCC | 0.01312 | 0 | 0 | 0 |
| SS | TCGAGT | 0.01379 | 0 | 0 | 0 |
| SS | AGCTCG | 0.01211 | 0 | 0 | 0 |
| SS | AGTTCCG | 0.01043 | 0 | 0 | 0 |
| SS | AGCTCA | 0.02455 | 0 | 0 | 0 |
| SS | TCTAGC | 0.02153 | 0 | 0 | 0 |
| SS | AGCTCC | 0.01514 | 0 | 0 | 0 |
| ST | TCAACT | 0.07628 | 0 | 0 | 0 |
| ST | AGTACT | 0.04431 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| ST | TCAACA | 0.04936 | 0 | 0 | 0 |
| ST | TCCACT | 0.07403 | 0 | 0 | 0 |
| ST | TCAACC | 0.02019 | 0 | 0 | 0 |
| ST | TCAACG | 0.02524 | 0 | 0 | 0 |
| ST | AGCACT | 0.04319 | 0 | 0 | 0 |
| ST | TCCACG | 0.0286 | 0 | 0 | 0 |
| ST | TCCACC | 0.04655 | 0 | 0 | 0 |
| ST | AGTACC | 0.03926 | 0 | 0 | 0 |
| ST | AGTACA | 0.05216 | 0 | 0 | 0 |
| ST | TCCACA | 0.06282 | 0 | 0 | 0 |
| ST | AGTACG | 0.02075 | 0 | 0 | 0 |
| ST | TCGACC | 0.0101 | 0 | 0 | 0 |
| ST | TCTACC | 0.05384 | 0 | 0 | 0 |
| ST | TCGACT | 0.02468 | 0 | 0 | 0 |
| ST | TCTACA | 0.06842 | 0 | 0 | 0 |
| ST | TCGACA | 0.02468 | 0 | 0 | 0 |
| ST | TCGACG | 0.007291 | 0 | 0 | 0 |
| ST | TCTACT | 0.0903 | 0 | 0 | 0 |
| ST | TCTACG | 0.03814 | 0 | 0 | 0 |
| ST | AGCACG | 0.02748 | 0 | 0 | 0 |
| ST | AGCACA | 0.03982 | 0 | 0 | 0 |
| ST | AGCACC | 0.03253 | 0 | 0 | 0 |
| SV | AGCGTT | 0.03926 | 0 | 0 | 0 |
| SV | TCGGTT | 0.02848 | 0 | 0 | 0 |
| SV | TCGGTG | 0.01386 | 0 | 0 | 0 |
| SV | AGCGTG | 0.01694 | 0 | 0 | 0 |
| SV | AGCGTC | 0.01232 | 0 | 0 | 0 |
| SV | TCGGTC | 0.008468 | 0 | 0 | 0 |
| SV | TCAGTG | 0.04157 | 0 | 0 | 0 |
| SV | TCTGTG | 0.05235 | 0 | 0 | 0 |
| SV | TCTGTC | 0.05851 | 0 | 0 | 0 |
| SV | TCTGTT | 0.1209 | 0 | 0 | 0 |
| SV | TCAGTT | 0.06005 | 0 | 0 | 0 |
| SV | TCAGTC | 0.02386 | 0 | 0 | 0 |
| SV | AGCGTA | 0.02617 | 0 | 0 | 0 |
| SV | TCAGTA | 0.04927 | 0 | 0 | 0 |
| SV | TCGGTA | 0.02925 | 0 | 0 | 0 |
| SV | AGTGTT | 0.07698 | 0 | 0 | 0 |
| SV | TCCGTT | 0.05928 | 0 | 0 | 0 |
| SV | TCTGTA | 0.05851 | 0 | 0 | 0 |
| SV | AGTGTA | 0.04927 | 0 | 0 | 0 |
| SV | TCCGTG | 0.02617 | 0 | 0 | 0 |
| SV | AGTGTG | 0.03772 | 0 | 0 | 0 |
| SV | TCCGTA | 0.0331 | 0 | 0 | 0 |
| SV | TCCGTC | 0.03002 | 0 | 0 | 0 |
| SV | AGTGTC | 0.04773 | 0 | 0 | 0 |
| SW | TCGTGG | 0.1222 | 0 | 0 | 0 |
| SW | TCCTGG | 0.1403 | 0 | 0 | 0 |
| SW | AGTTGG | 0.1448 | 0 | 0 | 0 |
| SW | TCTTGG | 0.2443 | 0 | 0 | 0 |
| SW | AGCTGG | 0.1086 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| SW | TCATGG | 0.2398 | 0 | 0 | 0 |
| SY | TCATAC | 0.1005 | 0 | 0 | 0 |
| SY | TCCTAC | 0.05094 | 0 | 0 | 0 |
| SY | TCGTAT | 0.07507 | 0 | 0 | 0 |
| SY | TCTTAT | 0.1582 | 0 | 0 | 0 |
| SY | TCTTAC | 0.08981 | 0 | 0 | 0 |
| SY | AGTTAC | 0.07105 | 0 | 0 | 0 |
| SY | AGTTAT | 0.1005 | 0 | 0 | 0 |
| SY | TCCTAT | 0.07641 | 0 | 0 | 0 |
| SY | TCATAT | 0.1247 | 0 | 0 | 0 |
| SY | AGCTAC | 0.04424 | 0 | 0 | 0 |
| SY | AGCTAT | 0.06032 | 0 | 0 | 0 |
| SY | TCGTAC | 0.04826 | 0 | 0 | 0 |
| T* | ACCTAG | 0 | 0 | 0 | 0 |
| T* | ACCTGA | 0 | 0 | 0 | 0 |
| T* | ACCTAA | 0.04167 | 0 | 0 | 0 |
| T* | ACTTAA | 0.1667 | 0 | 0 | 0 |
| T* | ACTTAG | 0.08333 | 0 | 0 | 0 |
| T* | ACATGA | 0.08333 | 0 | 0 | 0 |
| T* | ACTTGA | 0.2083 | 0 | 0 | 0 |
| T* | ACGTAA | 0.125 | 0 | 0 | 0 |
| T* | ACATAA | 0.125 | 0 | 0 | 0 |
| T* | ACATAG | 0.08333 | 0 | 0 | 0 |
| T* | ACGTGA | 0.04167 | 0 | 0 | 0 |
| T* | ACGTAG | 0.04167 | 0 | 0 | 0 |
| TA | ACTGCT | 0.143 | 0 | 0 | 0 |
| TA | ACCGCT | 0.06848 | 0 | 0 | 0 |
| TA | ACCGCG | 0.02115 | 0 | 0 | 0 |
| TA | ACGGCA | 0.03726 | 0 | 0 | 0 |
| TA | ACGGCC | 0.01913 | 0 | 0 | 0 |
| TA | ACGGCT | 0.04935 | 0 | 0 | 0 |
| TA | ACGGCG | 0.01913 | 0 | 0 | 0 |
| TA | ACCGCC | 0.03625 | 0 | 0 | 0 |
| TA | ACCGCA | 0.05337 | 0 | 0 | 0 |
| TA | ACTGCA | 0.1168 | 0 | 0 | 0 |
| TA | ACTGCC | 0.09466 | 0 | 0 | 0 |
| TA | ACAGCA | 0.1178 | 0 | 0 | 0 |
| TA | ACAGCC | 0.05035 | 0 | 0 | 0 |
| TA | ACAGCT | 0.08661 | 0 | 0 | 0 |
| TA | ACAGCG | 0.0433 | 0 | 0 | 0 |
| TA | ACTGCG | 0.0433 | 0 | 0 | 0 |
| TC | ACTTGT | 0.1837 | 0 | 0 | 0 |
| TC | ACCTGT | 0.1378 | 0 | 0 | 0 |
| TC | ACCTGC | 0.08163 | 0 | 0 | 0 |
| TC | ACTTGC | 0.1071 | 0 | 0 | 0 |
| TC | ACATGT | 0.2041 | 0 | 0 | 0 |
| TC | ACGTGT | 0.08163 | 0 | 0 | 0 |
| TC | ACGTGC | 0.06122 | 0 | 0 | 0 |
| TC | ACATGC | 0.1429 | 0 | 0 | 0 |
| TD | ACCGAT | 0.1088 | 0 | 0 | 0 |
| TD | ACGGAC | 0.05669 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| TD | ACGGAT | 0.09637 | 0 | 0 | 0 |
| TD | ACCGAC | 0.06463 | 0 | 0 | 0 |
| TD | ACAGAC | 0.09524 | 0 | 0 | 0 |
| TD | ACTGAC | 0.11 | 0 | 0 | 0 |
| TD | ACAGAT | 0.2222 | 0 | 0 | 0 |
| TD | ACTGAT | 0.246 | 0 | 0 | 0 |
| TE | ACAGAA | 0.2061 | 0 | 0 | 0 |
| TE | ACGGAG | 0.04123 | 0 | 0 | 0 |
| TE | ACGGAA | 0.1004 | 0 | 0 | 0 |
| TE | ACCGAA | 0.1205 | 0 | 0 | 0 |
| TE | ACAGAG | 0.08879 | 0 | 0 | 0 |
| TE | ACCGAG | 0.05708 | 0 | 0 | 0 |
| TE | ACTGAA | 0.2928 | 0 | 0 | 0 |
| TE | ACTGAG | 0.09302 | 0 | 0 | 0 |
| TF | ACCTTC | 0.08022 | 0 | 0 | 0 |
| TF | ACCTTT | 0.0899 | 0 | 0 | 0 |
| TF | ACATTC | 0.08437 | 0 | 0 | 0 |
| TF | ACGTTT | 0.08852 | 0 | 0 | 0 |
| TF | ACGTTC | 0.05256 | 0 | 0 | 0 |
| TF | ACATTT | 0.2199 | 0 | 0 | 0 |
| TF | ACTTTC | 0.1701 | 0 | 0 | 0 |
| TF | ACTTTT | 0.2144 | 0 | 0 | 0 |
| TG | ACAGGG | 0.04242 | 0 | 0 | 0 |
| TG | ACTGGA | 0.08606 | 0 | 0 | 0 |
| TG | ACGGGA | 0.03879 | 0 | 0 | 0 |
| TG | ACCGGC | 0.03636 | 0 | 0 | 0 |
| TG | ACGGGG | 0.02061 | 0 | 0 | 0 |
| TG | ACCGGA | 0.04121 | 0 | 0 | 0 |
| TG | ACTGGC | 0.06061 | 0 | 0 | 0 |
| TG | ACCGGG | 0.01818 | 0 | 0 | 0 |
| TG | ACAGGT | 0.143 | 0 | 0 | 0 |
| TG | ACGGGT | 0.04485 | 0 | 0 | 0 |
| TG | ACAGGA | 0.06788 | 0 | 0 | 0 |
| TG | ACTGGG | 0.05697 | 0 | 0 | 0 |
| TG | ACAGGC | 0.0703 | 0 | 0 | 0 |
| TG | ACTGGT | 0.1782 | 0 | 0 | 0 |
| TG | ACGGGC | 0.01939 | 0 | 0 | 0 |
| TG | ACCGGT | 0.07515 | 0 | 0 | 0 |
| TH | ACCCAT | 0.113 | 0 | 0 | 0 |
| TH | ACTCAC | 0.09635 | 0 | 0 | 0 |
| TH | ACCCAC | 0.05648 | 0 | 0 | 0 |
| TH | ACACAC | 0.0897 | 0 | 0 | 0 |
| TH | ACTCAT | 0.1894 | 0 | 0 | 0 |
| TH | ACGCAT | 0.1528 | 0 | 0 | 0 |
| TH | ACACAT | 0.2658 | 0 | 0 | 0 |
| TH | ACGCAC | 0.03654 | 0 | 0 | 0 |
| TI | ACAATA | 0.09109 | 0 | 0 | 0 |
| TI | ACAATC | 0.06202 | 0 | 0 | 0 |
| TI | ACTATA | 0.07849 | 0 | 0 | 0 |
| TI | ACGATT | 0.04554 | 0 | 0 | 0 |
| TI | ACGATA | 0.05233 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| TI | ACGATC | 0.01453 | 0 | 0 | 0 |
| TI | ACAATT | 0.1395 | 0 | 0 | 0 |
| TI | ACTATC | 0.1017 | 0 | 0 | 0 |
| TI | ACCATA | 0.08043 | 0 | 0 | 0 |
| TI | ACCATC | 0.07171 | 0 | 0 | 0 |
| TI | ACCATT | 0.1027 | 0 | 0 | 0 |
| TI | ACTATT | 0.1599 | 0 | 0 | 0 |
| TK | ACTAAA | 0.1438 | 0 | 0 | 0 |
| TK | ACTAAG | 0.09069 | 0 | 0 | 0 |
| TK | ACAAAA | 0.1855 | 0 | 0 | 0 |
| TK | ACCAAG | 0.125 | 0 | 0 | 0 |
| TK | ACAAAG | 0.143 | 0 | 0 | 0 |
| TK | ACGAAA | 0.09804 | 0 | 0 | 0 |
| TK | ACCAA | 0.152 | 0 | 0 | 0 |
| TK | ACGAAG | 0.06209 | 0 | 0 | 0 |
| TL | ACCTTG | 0.05143 | 0 | 0 | 0 |
| TL | ACATTA | 0.07682 | 0 | 0 | 0 |
| TL | ACATTG | 0.07943 | 0 | 0 | 0 |
| TL | ACCCTC | 0.005208 | 0 | 0 | 0 |
| TL | ACCCTA | 0.02018 | 0 | 0 | 0 |
| TL | ACCTTA | 0.05013 | 0 | 0 | 0 |
| TL | ACACTG | 0.0319 | 0 | 0 | 0 |
| TL | ACGCTC | 0.00651 | 0 | 0 | 0 |
| TL | ACGCTA | 0.02539 | 0 | 0 | 0 |
| TL | ACGCTT | 0.02344 | 0 | 0 | 0 |
| TL | ACGCTG | 0.02344 | 0 | 0 | 0 |
| TL | ACTTTA | 0.1322 | 0 | 0 | 0 |
| TL | ACGTTG | 0.04297 | 0 | 0 | 0 |
| TL | ACCCTT | 0.02214 | 0 | 0 | 0 |
| TL | ACTCTA | 0.04297 | 0 | 0 | 0 |
| TL | ACTCTC | 0.02474 | 0 | 0 | 0 |
| TL | ACACTC | 0.01758 | 0 | 0 | 0 |
| TL | ACTTTG | 0.1211 | 0 | 0 | 0 |
| TL | ACACTT | 0.04036 | 0 | 0 | 0 |
| TL | ACACTA | 0.04232 | 0 | 0 | 0 |
| TL | ACGTTA | 0.04036 | 0 | 0 | 0 |
| TL | ACTCTG | 0.02409 | 0 | 0 | 0 |
| TL | ACCCTG | 0.02279 | 0 | 0 | 0 |
| TL | ACTCTT | 0.03255 | 0 | 0 | 0 |
| TM | ACCATG | 0.2528 | 0 | 0 | 0 |
| TM | ACAATG | 0.3309 | 0 | 0 | 0 |
| TM | ACTATG | 0.2714 | 0 | 0 | 0 |
| TM | ACGATG | 0.145 | 0 | 0 | 0 |
| TN | ACTAAC | 0.09962 | 0 | 0 | 0 |
| TN | ACAAAC | 0.1357 | 0 | 0 | 0 |
| TN | ACTAAT | 0.167 | 0 | 0 | 0 |
| TN | ACCAAT | 0.1414 | 0 | 0 | 0 |
| TN | ACGAAC | 0.05693 | 0 | 0 | 0 |
| TN | ACCAAC | 0.1034 | 0 | 0 | 0 |
| TN | ACGAAT | 0.08918 | 0 | 0 | 0 |
| TN | ACAAAT | 0.2068 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| TP | ACACCT | 0.1306 | 0 | 1 | 0 |
| TP | ACGCCG | 0.02567 | 0 | 1 | 0 |
| TP | ACCCCC | 0.0279 | 0 | 1 | 0 |
| TP | ACGCCT | 0.06362 | 0 | 1 | 0 |
| TP | ACGCCC | 0.0279 | 0 | 1 | 0 |
| TP | ACACCG | 0.0346 | 0 | 1 | 0 |
| TP | ACCCCA | 0.05692 | 0 | 1 | 0 |
| TP | ACTCCA | 0.1808 | 1 | 1 | 1 |
| TP | ACGCCA | 0.04911 | 0 | 1 | 0 |
| TP | ACCCCG | 0.01116 | 0 | 1 | 0 |
| TP | ACTCCC | 0.04129 | 0 | 1 | 0 |
| TP | ACTCCG | 0.03348 | 0 | 1 | 0 |
| TP | ACCCCT | 0.04018 | 0 | 1 | 0 |
| TP | ACACCC | 0.03795 | 0 | 1 | 0 |
| TP | ACACCA | 0.1462 | 0 | 1 | 0 |
| TP | ACTCCT | 0.09263 | 0 | 1 | 0 |
| TQ | ACGCAG | 0.06198 | 0 | 0 | 0 |
| TQ | ACCCAG | 0.05695 | 0 | 0 | 0 |
| TQ | ACACAG | 0.09715 | 0 | 0 | 0 |
| TQ | ACGCAA | 0.1005 | 0 | 0 | 0 |
| TQ | ACCCAA | 0.1625 | 0 | 0 | 0 |
| TQ | ACTCAG | 0.0871 | 0 | 0 | 0 |
| TQ | ACTCAA | 0.2546 | 0 | 0 | 0 |
| TQ | ACACAA | 0.1792 | 0 | 0 | 0 |
| TR | ACCCGC | 0.007289 | 0 | 1 | 0 |
| TR | ACCCGT | 0.02041 | 0 | 1 | 0 |
| TR | ACCCGG | 0.004373 | 0 | 1 | 0 |
| TR | ACCCGA | 0.007289 | 0 | 1 | 0 |
| TR | ACGCGA | 0.007289 | 0 | 1 | 0 |
| TR | ACACGG | 0.01458 | 0 | 1 | 0 |
| TR | ACACGC | 0.02041 | 0 | 1 | 0 |
| TR | ACACGT | 0.0379 | 0 | 1 | 0 |
| TR | ACGCGT | 0.01603 | 0 | 1 | 0 |
| TR | ACACGA | 0.01166 | 0 | 1 | 0 |
| TR | ACTAGA | 0.1312 | 0 | 1 | 0 |
| TR | ACTAGG | 0.04956 | 0 | 1 | 0 |
| TR | ACTCGT | 0.04082 | 0 | 1 | 0 |
| TR | ACTCGG | 0.01603 | 0 | 1 | 0 |
| TR | ACTCGC | 0.01749 | 0 | 1 | 0 |
| TR | ACTCGA | 0.01895 | 0 | 1 | 0 |
| TR | ACGCGC | 0.002915 | 0 | 1 | 0 |
| TR | ACGCGG | 0.01166 | 0 | 1 | 0 |
| TR | ACCAGG | 0.04519 | 0 | 1 | 0 |
| TR | ACAAGA | 0.2201 | 1 | 1 | 1 |
| TR | ACGAGA | 0.0656 | 0 | 1 | 0 |
| TR | ACGAGG | 0.04227 | 0 | 1 | 0 |
| TR | ACCAGA | 0.09913 | 0 | 1 | 0 |
| TR | ACAAGG | 0.09184 | 0 | 1 | 0 |
| TS | ACGTCA | 0.03595 | 0 | 1 | 0 |
| TS | ACGTCT | 0.0281 | 0 | 1 | 0 |
| TS | ACGTCC | 0.01176 | 0 | 1 | 0 |

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|----|--------|---------|---|---|---|
| TS | ACGTCC | 0.01503 | 0 | 1 | 0 |
| TS | ACCTCG | 0.01373 | 0 | 1 | 0 |
| TS | ACAAGC | 0.0281 | 0 | 1 | 0 |
| TS | ACAAGT | 0.06209 | 0 | 1 | 0 |
| TS | ACCTCT | 0.05882 | 0 | 1 | 0 |
| TS | ACCTCC | 0.0268 | 0 | 1 | 0 |
| TS | ACCTCA | 0.05098 | 0 | 1 | 0 |
| TS | ACGAGT | 0.02222 | 0 | 1 | 0 |
| TS | ACCAGT | 0.03007 | 0 | 1 | 0 |
| TS | ACATCA | 0.07908 | 0 | 1 | 0 |
| TS | ACATCC | 0.04183 | 0 | 1 | 0 |
| TS | ACATCT | 0.07059 | 0 | 1 | 0 |
| TS | ACATCG | 0.02353 | 0 | 1 | 0 |
| TS | ACCAGC | 0.01765 | 0 | 1 | 0 |
| TS | ACTAGC | 0.02745 | 0 | 1 | 0 |
| TS | ACTTCG | 0.02484 | 0 | 1 | 0 |
| TS | ACTTCT | 0.1216 | 1 | 1 | 1 |
| TS | ACTTCC | 0.05882 | 0 | 1 | 0 |
| TS | ACTTCA | 0.0817 | 0 | 1 | 0 |
| TS | ACTAGT | 0.05163 | 0 | 1 | 0 |
| TS | ACGAGC | 0.01765 | 0 | 1 | 0 |
| TT | ACGACG | 0.01921 | 0 | 0 | 0 |
| TT | ACGACT | 0.0259 | 0 | 0 | 0 |
| TT | ACGACC | 0.01754 | 0 | 0 | 0 |
| TT | ACGACA | 0.04094 | 0 | 0 | 0 |
| TT | ACAACC | 0.0543 | 0 | 0 | 0 |
| TT | ACTACG | 0.04177 | 0 | 0 | 0 |
| TT | ACTACT | 0.1145 | 0 | 0 | 0 |
| TT | ACTACC | 0.08688 | 0 | 0 | 0 |
| TT | ACTACA | 0.1028 | 0 | 0 | 0 |
| TT | ACCACA | 0.07686 | 0 | 0 | 0 |
| TT | ACAACA | 0.1145 | 0 | 0 | 0 |
| TT | ACAACT | 0.07602 | 0 | 0 | 0 |
| TT | ACAACG | 0.04511 | 0 | 0 | 0 |
| TT | ACCACT | 0.08772 | 0 | 0 | 0 |
| TT | ACCACG | 0.04344 | 0 | 0 | 0 |
| TT | ACCACC | 0.05263 | 0 | 0 | 0 |
| TV | ACTGTC | 0.07871 | 0 | 0 | 0 |
| TV | ACTGTG | 0.07568 | 0 | 0 | 0 |
| TV | ACAGTG | 0.06458 | 0 | 0 | 0 |
| TV | ACTGTA | 0.07568 | 0 | 0 | 0 |
| TV | ACTGTT | 0.1584 | 0 | 0 | 0 |
| TV | ACAGTC | 0.04945 | 0 | 0 | 0 |
| TV | ACAGTA | 0.09788 | 0 | 0 | 0 |
| TV | ACGGTG | 0.02926 | 0 | 0 | 0 |
| TV | ACCGTC | 0.03229 | 0 | 0 | 0 |
| TV | ACCGTG | 0.03532 | 0 | 0 | 0 |
| TV | ACGGTA | 0.03128 | 0 | 0 | 0 |
| TV | ACGGTC | 0.02321 | 0 | 0 | 0 |
| TV | ACAGTT | 0.08981 | 0 | 0 | 0 |
| TV | ACGGTT | 0.03532 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| TV | ACCGTA | 0.03633 | 0 | 0 | 0 |
| TV | ACCGTT | 0.08678 | 0 | 0 | 0 |
| TW | ACCTGG | 0.1989 | 0 | 0 | 0 |
| TW | ACATGG | 0.328 | 0 | 0 | 0 |
| TW | ACGTGG | 0.1398 | 0 | 0 | 0 |
| TW | ACTTGG | 0.3333 | 0 | 0 | 0 |
| TY | ACTTAC | 0.1471 | 0 | 0 | 0 |
| TY | ACATAT | 0.2157 | 0 | 0 | 0 |
| TY | ACCTAT | 0.09608 | 0 | 0 | 0 |
| TY | ACTTAT | 0.1863 | 0 | 0 | 0 |
| TY | ACGTAC | 0.0549 | 0 | 0 | 0 |
| TY | ACATAC | 0.1353 | 0 | 0 | 0 |
| TY | ACGTAT | 0.07647 | 0 | 0 | 0 |
| TY | ACCTAC | 0.08824 | 0 | 0 | 0 |
| V* | GTGTAG | 0.03448 | 0 | 0 | 0 |
| V* | GTATAA | 0.1379 | 0 | 0 | 0 |
| V* | GTATAG | 0.03448 | 0 | 0 | 0 |
| V* | GTGTAA | 0.1034 | 0 | 0 | 0 |
| V* | GTGTGA | 0 | 0 | 0 | 0 |
| V* | GTCTAA | 0.1034 | 0 | 0 | 0 |
| V* | GTATGA | 0.1034 | 0 | 0 | 0 |
| V* | GTCTAG | 0 | 0 | 0 | 0 |
| V* | GTCTGA | 0.03448 | 0 | 0 | 0 |
| V* | GTTTAG | 0.06897 | 0 | 0 | 0 |
| V* | GTTTGA | 0.2759 | 0 | 0 | 0 |
| V* | GTTTAA | 0.1034 | 0 | 0 | 0 |
| VA | GTGGCG | 0.02096 | 0 | 0 | 0 |
| VA | GTGGCT | 0.06986 | 0 | 0 | 0 |
| VA | GTAGCC | 0.03393 | 0 | 0 | 0 |
| VA | GTCGCC | 0.03293 | 0 | 0 | 0 |
| VA | GTAGCG | 0.02794 | 0 | 0 | 0 |
| VA | GTAGCA | 0.07585 | 0 | 0 | 0 |
| VA | GTCGCA | 0.06687 | 0 | 0 | 0 |
| VA | GTCGCG | 0.01397 | 0 | 0 | 0 |
| VA | GTTGCA | 0.1098 | 0 | 0 | 0 |
| VA | GTGGCA | 0.06387 | 0 | 0 | 0 |
| VA | GTTGCC | 0.07884 | 0 | 0 | 0 |
| VA | GTAGCT | 0.06387 | 0 | 0 | 0 |
| VA | GTTGCT | 0.1677 | 0 | 0 | 0 |
| VA | GTTGCG | 0.04391 | 0 | 0 | 0 |
| VA | GTCGCT | 0.07784 | 0 | 0 | 0 |
| VA | GTGGCC | 0.0519 | 0 | 0 | 0 |
| VC | GTTTGC | 0.1694 | 0 | 1 | 0 |
| VC | GTGTGC | 0.09917 | 0 | 1 | 0 |
| VC | GTGTGT | 0.08264 | 0 | 1 | 0 |
| VC | GTTTGT | 0.2727 | 1 | 1 | 1 |
| VC | GTATGT | 0.1033 | 0 | 1 | 0 |
| VC | GTATGC | 0.07025 | 0 | 1 | 0 |
| VC | GTCTGC | 0.05372 | 0 | 1 | 0 |
| VC | GTCTGT | 0.1488 | 0 | 1 | 0 |
| VD | GTTGAT | 0.2568 | 0 | 0 | 0 |

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|----|---------|---------|---|---|--------|
| VD | GTCGAC | 0.06394 | 0 | 0 | 0 |
| VD | GTAGAT | 0.1635 | 0 | 0 | 0 |
| VD | GTTGAC | 0.1289 | 0 | 0 | 0 |
| VD | GTAGAC | 0.08071 | 0 | 0 | 0 |
| VD | GTGGAC | 0.05975 | 0 | 0 | 0 |
| VD | GTCGAT | 0.09539 | 0 | 0 | 0 |
| VD | GTGGAT | 0.1509 | 0 | 0 | 0 |
| VE | GTAGAA | 0.145 | 1 | 3 | 0.3333 |
| VE | GTTGAA | 0.2752 | 1 | 3 | 0.3333 |
| VE | GTCGAA | 0.1224 | 0 | 3 | 0 |
| VE | GTGGAA | 0.1743 | 1 | 3 | 0.3333 |
| VE | GTTGAG | 0.08619 | 0 | 3 | 0 |
| VE | GTAGAG | 0.08815 | 0 | 3 | 0 |
| VE | GTCGAG | 0.03134 | 0 | 3 | 0 |
| VE | GTGGAG | 0.07738 | 0 | 3 | 0 |
| VF | GTCTTC | 0.07068 | 0 | 0 | 0 |
| VF | GTCTTT | 0.09173 | 0 | 0 | 0 |
| VF | GTATTT | 0.1684 | 0 | 0 | 0 |
| VF | GTTTTTC | 0.215 | 0 | 0 | 0 |
| VF | GTGTTC | 0.06165 | 0 | 0 | 0 |
| VF | GTGTTT | 0.1008 | 0 | 0 | 0 |
| VF | GTTTTT | 0.2376 | 0 | 0 | 0 |
| VF | GTATTC | 0.05414 | 0 | 0 | 0 |
| VG | GTCGGC | 0.04333 | 0 | 1 | 0 |
| VG | GTCGGT | 0.09464 | 0 | 1 | 0 |
| VG | GTCGGA | 0.04219 | 0 | 1 | 0 |
| VG | GTCGGG | 0.02281 | 0 | 1 | 0 |
| VG | GTGGGC | 0.04105 | 0 | 1 | 0 |
| VG | GTAGGG | 0.03193 | 0 | 1 | 0 |
| VG | GTAGGC | 0.03535 | 0 | 1 | 0 |
| VG | GTAGGA | 0.04903 | 0 | 1 | 0 |
| VG | GTGGGT | 0.05245 | 0 | 1 | 0 |
| VG | GTAGGT | 0.06157 | 0 | 1 | 0 |
| VG | GTTGGA | 0.1243 | 0 | 1 | 0 |
| VG | GTTGGT | 0.1995 | 1 | 1 | 1 |
| VG | GTTGGG | 0.04675 | 0 | 1 | 0 |
| VG | GTTGGC | 0.06842 | 0 | 1 | 0 |
| VG | GTGGGG | 0.03193 | 0 | 1 | 0 |
| VG | GTGGGA | 0.05473 | 0 | 1 | 0 |
| VH | GTTTCAT | 0.2627 | 0 | 0 | 0 |
| VH | GTGCAC | 0.05898 | 0 | 0 | 0 |
| VH | GTCCAT | 0.1153 | 0 | 0 | 0 |
| VH | GTCCAC | 0.08311 | 0 | 0 | 0 |
| VH | GTTTCAC | 0.1421 | 0 | 0 | 0 |
| VH | GTGCAT | 0.1233 | 0 | 0 | 0 |
| VH | GTACAC | 0.05362 | 0 | 0 | 0 |
| VH | GTACAT | 0.1609 | 0 | 0 | 0 |
| VI | GTGATA | 0.06035 | 0 | 0 | 0 |
| VI | GTTATC | 0.09469 | 0 | 0 | 0 |
| VI | GTGATC | 0.03122 | 0 | 0 | 0 |
| VI | GTCATA | 0.05931 | 0 | 0 | 0 |

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|----|--------|----------|---|---|---|
| VI | GTCATC | 0.08533 | 0 | 0 | 0 |
| VI | GTCATT | 0.128 | 0 | 0 | 0 |
| VI | GTTATA | 0.09365 | 0 | 0 | 0 |
| VI | GTAATA | 0.0666 | 0 | 0 | 0 |
| VI | GTAATC | 0.04266 | 0 | 0 | 0 |
| VI | GTTATT | 0.1904 | 0 | 0 | 0 |
| VI | GTGATT | 0.06972 | 0 | 0 | 0 |
| VI | GTAATT | 0.07804 | 0 | 0 | 0 |
| VK | GTAAAG | 0.09171 | 0 | 0 | 0 |
| VK | GTAAAA | 0.1243 | 0 | 0 | 0 |
| VK | GTTAAA | 0.1817 | 0 | 0 | 0 |
| VK | GTTAAG | 0.1173 | 0 | 0 | 0 |
| VK | GTCAAA | 0.1464 | 0 | 0 | 0 |
| VK | GTGAAA | 0.09877 | 0 | 0 | 0 |
| VK | GTCAAG | 0.1464 | 0 | 0 | 0 |
| VK | GTGAAG | 0.09347 | 0 | 0 | 0 |
| VL | GTTCTA | 0.03823 | 0 | 0 | 0 |
| VL | GTTCTC | 0.02482 | 0 | 0 | 0 |
| VL | GTTCTG | 0.03823 | 0 | 0 | 0 |
| VL | GTTCTT | 0.06237 | 0 | 0 | 0 |
| VL | GTAETT | 0.03018 | 0 | 0 | 0 |
| VL | GTAETC | 0.0114 | 0 | 0 | 0 |
| VL | GTAETG | 0.03756 | 0 | 0 | 0 |
| VL | GTAETA | 0.02817 | 0 | 0 | 0 |
| VL | GTCTTG | 0.05835 | 0 | 0 | 0 |
| VL | GTCTTA | 0.04091 | 0 | 0 | 0 |
| VL | GTATTA | 0.05433 | 0 | 0 | 0 |
| VL | GTATTG | 0.06103 | 0 | 0 | 0 |
| VL | GTGCTG | 0.02616 | 0 | 0 | 0 |
| VL | GTGCTC | 0.0114 | 0 | 0 | 0 |
| VL | GTGCTA | 0.03219 | 0 | 0 | 0 |
| VL | GTTTTG | 0.1375 | 0 | 0 | 0 |
| VL | GTGCTT | 0.03219 | 0 | 0 | 0 |
| VL | GTTTTA | 0.1247 | 0 | 0 | 0 |
| VL | GTCCTG | 0.01677 | 0 | 0 | 0 |
| VL | GTGTTA | 0.03488 | 0 | 0 | 0 |
| VL | GTGTTG | 0.02951 | 0 | 0 | 0 |
| VL | GTCCTC | 0.008719 | 0 | 0 | 0 |
| VL | GTCCTT | 0.0389 | 0 | 0 | 0 |
| VL | GTCCTA | 0.02146 | 0 | 0 | 0 |
| VM | GTTATG | 0.3418 | 0 | 0 | 0 |
| VM | GTAATG | 0.2327 | 0 | 0 | 0 |
| VM | GTCATG | 0.2327 | 0 | 0 | 0 |
| VM | GTGATG | 0.1927 | 0 | 0 | 0 |
| VN | GTAAAC | 0.1189 | 0 | 1 | 0 |
| VN | GTTAAT | 0.1978 | 1 | 1 | 1 |
| VN | GTAAAT | 0.1529 | 0 | 1 | 0 |
| VN | GTCAAT | 0.1323 | 0 | 1 | 0 |
| VN | GTGAAT | 0.108 | 0 | 1 | 0 |
| VN | GTGAAC | 0.0716 | 0 | 1 | 0 |
| VN | GTTAAC | 0.1177 | 0 | 1 | 0 |

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|----|---------|----------|---|---|---|
| VN | GTCAAC | 0.1007 | 0 | 1 | 0 |
| VP | GTCCCT | 0.02861 | 0 | 0 | 0 |
| VP | GTGCCT | 0.04172 | 0 | 0 | 0 |
| VP | GTTCCG | 0.05483 | 0 | 0 | 0 |
| VP | GTCCCG | 0.01073 | 0 | 0 | 0 |
| VP | GTACCC | 0.03695 | 0 | 0 | 0 |
| VP | GTCCCC | 0.02026 | 0 | 0 | 0 |
| VP | GTGCCG | 0.02145 | 0 | 0 | 0 |
| VP | GTGCCC | 0.03576 | 0 | 0 | 0 |
| VP | GTACCT | 0.07271 | 0 | 0 | 0 |
| VP | GTACCG | 0.03337 | 0 | 0 | 0 |
| VP | GTTCCA | 0.1943 | 0 | 0 | 0 |
| VP | GTTCCC | 0.05244 | 0 | 0 | 0 |
| VP | GTGCCA | 0.08224 | 0 | 0 | 0 |
| VP | GTACCA | 0.1037 | 0 | 0 | 0 |
| VP | GTTCCCT | 0.1466 | 0 | 0 | 0 |
| VP | GTCCCA | 0.06436 | 0 | 0 | 0 |
| VQ | GTACAG | 0.06273 | 0 | 0 | 0 |
| VQ | GTCCAA | 0.1292 | 0 | 0 | 0 |
| VQ | GTGCAG | 0.0738 | 0 | 0 | 0 |
| VQ | GTGCAA | 0.1494 | 0 | 0 | 0 |
| VQ | GTTCAA | 0.2989 | 0 | 0 | 0 |
| VQ | GTTCAG | 0.09041 | 0 | 0 | 0 |
| VQ | GTCCAG | 0.04613 | 0 | 0 | 0 |
| VQ | GTACAA | 0.1494 | 0 | 0 | 0 |
| VR | GTTCCGG | 0.01603 | 0 | 0 | 0 |
| VR | GTAAGA | 0.1108 | 0 | 0 | 0 |
| VR | GTGCGG | 0.01166 | 0 | 0 | 0 |
| VR | GTTAGG | 0.04665 | 0 | 0 | 0 |
| VR | GTGAGA | 0.1064 | 0 | 0 | 0 |
| VR | GTTAGA | 0.1676 | 0 | 0 | 0 |
| VR | GTTCGT | 0.08455 | 0 | 0 | 0 |
| VR | GTCCGA | 0.007289 | 0 | 0 | 0 |
| VR | GTGCGA | 0.007289 | 0 | 0 | 0 |
| VR | GTCCGC | 0.01312 | 0 | 0 | 0 |
| VR | GTGCGC | 0.01166 | 0 | 0 | 0 |
| VR | GTGCGT | 0.01749 | 0 | 0 | 0 |
| VR | GTGAGG | 0.03644 | 0 | 0 | 0 |
| VR | GTCCGT | 0.02187 | 0 | 0 | 0 |
| VR | GTACGT | 0.03936 | 0 | 0 | 0 |
| VR | GTACGG | 0.01458 | 0 | 0 | 0 |
| VR | GTACGC | 0.008746 | 0 | 0 | 0 |
| VR | GTCAGA | 0.09184 | 0 | 0 | 0 |
| VR | GTTCGA | 0.007289 | 0 | 0 | 0 |
| VR | GTAAGG | 0.04956 | 0 | 0 | 0 |
| VR | GTCAGG | 0.05685 | 0 | 0 | 0 |
| VR | GTACGA | 0.0379 | 0 | 0 | 0 |
| VR | GTCCGG | 0.01166 | 0 | 0 | 0 |
| VR | GTTCCGC | 0.02332 | 0 | 0 | 0 |
| VS | GTTTCT | 0.1506 | 0 | 0 | 0 |
| VS | GTTTCG | 0.03255 | 0 | 0 | 0 |

| | | | | | |
|----|--------|---------|---|---|---|
| VS | GTTAGC | 0.04012 | 0 | 0 | 0 |
| VS | GTGAGC | 0.0212 | 0 | 0 | 0 |
| VS | GTTAGT | 0.04921 | 0 | 0 | 0 |
| VS | GTCTCC | 0.02195 | 0 | 0 | 0 |
| VS | GTGAGT | 0.03028 | 0 | 0 | 0 |
| VS | GTCAGT | 0.04012 | 0 | 0 | 0 |
| VS | GTCTCA | 0.03179 | 0 | 0 | 0 |
| VS | GTAAGC | 0.02347 | 0 | 0 | 0 |
| VS | GTATCG | 0.03028 | 0 | 0 | 0 |
| VS | GTATCC | 0.04164 | 0 | 0 | 0 |
| VS | GTATCA | 0.0545 | 0 | 0 | 0 |
| VS | GTCTCG | 0.01665 | 0 | 0 | 0 |
| VS | GTGTCC | 0.01665 | 0 | 0 | 0 |
| VS | GTCAGC | 0.01665 | 0 | 0 | 0 |
| VS | GTAAGT | 0.03407 | 0 | 0 | 0 |
| VS | GTGTCT | 0.03785 | 0 | 0 | 0 |
| VS | GTTTCC | 0.07343 | 0 | 0 | 0 |
| VS | GTATCT | 0.06056 | 0 | 0 | 0 |
| VS | GTGTCA | 0.02347 | 0 | 0 | 0 |
| VS | GTGTCC | 0.02877 | 0 | 0 | 0 |
| VS | GTCTCT | 0.04996 | 0 | 0 | 0 |
| VS | GTTTCA | 0.07419 | 0 | 0 | 0 |
| VT | GTCACC | 0.07267 | 0 | 0 | 0 |
| VT | GTCACA | 0.07158 | 0 | 0 | 0 |
| VT | GTCACG | 0.03579 | 0 | 0 | 0 |
| VT | GTTACC | 0.0987 | 0 | 0 | 0 |
| VT | GTTACT | 0.1356 | 0 | 0 | 0 |
| VT | GTAACG | 0.03145 | 0 | 0 | 0 |
| VT | GTCACT | 0.09219 | 0 | 0 | 0 |
| VT | GTGACA | 0.04555 | 0 | 0 | 0 |
| VT | GTGACT | 0.04664 | 0 | 0 | 0 |
| VT | GTAACC | 0.04013 | 0 | 0 | 0 |
| VT | GTTACA | 0.09111 | 0 | 0 | 0 |
| VT | GTGACG | 0.02928 | 0 | 0 | 0 |
| VT | GTGACC | 0.03579 | 0 | 0 | 0 |
| VT | GTAACA | 0.07484 | 0 | 0 | 0 |
| VT | GTTACG | 0.04013 | 0 | 0 | 0 |
| VT | GTAACT | 0.05857 | 0 | 0 | 0 |
| VV | GTAGTT | 0.06044 | 0 | 0 | 0 |
| VV | GTCGTA | 0.03077 | 0 | 0 | 0 |
| VV | GTGGTA | 0.06264 | 0 | 0 | 0 |
| VV | GTTGTT | 0.1945 | 0 | 0 | 0 |
| VV | GTTGTG | 0.05934 | 0 | 0 | 0 |
| VV | GTTGTA | 0.07582 | 0 | 0 | 0 |
| VV | GTTGTC | 0.08901 | 0 | 0 | 0 |
| VV | GTCGTG | 0.03516 | 0 | 0 | 0 |
| VV | GTCGTC | 0.04176 | 0 | 0 | 0 |
| VV | GTCGTT | 0.06923 | 0 | 0 | 0 |
| VV | GTGGTT | 0.07912 | 0 | 0 | 0 |
| VV | GTGGTG | 0.04615 | 0 | 0 | 0 |
| VV | GTGGTC | 0.04176 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| VV | GTAGTG | 0.04176 | 0 | 0 | 0 |
| VV | GTAGTA | 0.04066 | 0 | 0 | 0 |
| VV | GTAGTC | 0.03187 | 0 | 0 | 0 |
| VW | GTATGG | 0.3291 | 0 | 0 | 0 |
| VW | GTGTGG | 0.1392 | 0 | 0 | 0 |
| VW | GTTTGG | 0.3544 | 0 | 0 | 0 |
| VW | GTCTGG | 0.1772 | 0 | 0 | 0 |
| VY | GTCTAC | 0.09946 | 0 | 0 | 0 |
| VY | GTGTAC | 0.05425 | 0 | 0 | 0 |
| VY | GTCTAT | 0.08861 | 0 | 0 | 0 |
| VY | GTTTAC | 0.1863 | 0 | 0 | 0 |
| VY | GTTTAT | 0.2405 | 0 | 0 | 0 |
| VY | GTATAT | 0.1338 | 0 | 0 | 0 |
| VY | GTATAC | 0.09222 | 0 | 0 | 0 |
| VY | GTGTAT | 0.1049 | 0 | 0 | 0 |
| W* | TGGTGA | 0.4545 | 0 | 0 | 0 |
| W* | TGGTAA | 0.3636 | 0 | 0 | 0 |
| W* | TGGTAG | 0.1818 | 0 | 0 | 0 |
| WA | TGGGCC | 0.1511 | 0 | 0 | 0 |
| WA | TGGGCA | 0.3453 | 0 | 0 | 0 |
| WA | TGGGCG | 0.1223 | 0 | 0 | 0 |
| WA | TGGGCT | 0.3813 | 0 | 0 | 0 |
| WC | TGGTGC | 0.3086 | 0 | 0 | 0 |
| WC | TGGTGT | 0.6914 | 0 | 0 | 0 |
| WD | TGGGAC | 0.3298 | 0 | 0 | 0 |
| WD | TGGGAT | 0.6702 | 0 | 0 | 0 |
| WE | TGGGAA | 0.7222 | 0 | 0 | 0 |
| WE | TGGGAG | 0.2778 | 0 | 0 | 0 |
| WF | TGGTTT | 0.6458 | 0 | 0 | 0 |
| WF | TGGTTC | 0.3542 | 0 | 0 | 0 |
| WG | TGGGGT | 0.4217 | 1 | 1 | 1 |
| WG | TGGGGG | 0.2048 | 0 | 1 | 0 |
| WG | TGGGGA | 0.1747 | 0 | 1 | 0 |
| WG | TGGGGC | 0.1988 | 0 | 1 | 0 |
| WH | TGGCAT | 0.6 | 0 | 0 | 0 |
| WH | TGGCAC | 0.4 | 0 | 0 | 0 |
| WI | TGGATT | 0.4845 | 0 | 0 | 0 |
| WI | TGGATC | 0.2629 | 0 | 0 | 0 |
| WI | TGGATA | 0.2526 | 0 | 0 | 0 |
| WK | TGGAAA | 0.6157 | 0 | 0 | 0 |
| WK | TGGAAG | 0.3843 | 0 | 0 | 0 |
| WL | TGGCTT | 0.1312 | 0 | 0 | 0 |
| WL | TGGCTG | 0.156 | 0 | 0 | 0 |
| WL | TGGCTC | 0.06028 | 0 | 0 | 0 |
| WL | TGGCTA | 0.1348 | 0 | 0 | 0 |
| WL | TGGTTG | 0.273 | 0 | 0 | 0 |
| WL | TGGTTA | 0.2447 | 0 | 0 | 0 |
| WM | TGGATG | 1 | 1 | 1 | 1 |
| WN | TGGAAT | 0.6243 | 0 | 0 | 0 |
| WN | TGGAAC | 0.3757 | 0 | 0 | 0 |
| WP | TGGCCA | 0.3976 | 0 | 0 | 0 |

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|----|--------|---------|---|---|---|
| WP | TGGCCC | 0.2048 | 0 | 0 | 0 |
| WP | TGGCCT | 0.3012 | 0 | 0 | 0 |
| WP | TGGCCG | 0.09639 | 0 | 0 | 0 |
| WQ | TGGCAG | 0.3462 | 0 | 0 | 0 |
| WQ | TGGCAA | 0.6538 | 0 | 0 | 0 |
| WR | TGGAGG | 0.2015 | 0 | 0 | 0 |
| WR | TGGAGA | 0.6119 | 0 | 0 | 0 |
| WR | TGGCGT | 0.09701 | 0 | 0 | 0 |
| WR | TGGCGA | 0.04478 | 0 | 0 | 0 |
| WR | TGGCGC | 0.02985 | 0 | 0 | 0 |
| WR | TGGCGG | 0.01493 | 0 | 0 | 0 |
| WS | TGGAGT | 0.1608 | 0 | 0 | 0 |
| WS | TGGAGC | 0.07343 | 0 | 0 | 0 |
| WS | TGGTCA | 0.2168 | 0 | 0 | 0 |
| WS | TGGTCC | 0.1573 | 0 | 0 | 0 |
| WS | TGGTCT | 0.2937 | 0 | 0 | 0 |
| WS | TGGTCG | 0.0979 | 0 | 0 | 0 |
| WT | TGGACA | 0.3151 | 0 | 0 | 0 |
| WT | TGGACG | 0.1507 | 0 | 0 | 0 |
| WT | TGGACT | 0.3082 | 0 | 0 | 0 |
| WT | TGGACC | 0.226 | 0 | 0 | 0 |
| WV | TGGGTT | 0.4551 | 0 | 0 | 0 |
| WV | TGGGTC | 0.2079 | 0 | 0 | 0 |
| WV | TGGGTA | 0.2135 | 0 | 0 | 0 |
| WV | TGGGTG | 0.1236 | 0 | 0 | 0 |
| WW | TGGTGG | 1 | 0 | 0 | 0 |
| WY | TGGTAT | 0.5106 | 0 | 0 | 0 |
| WY | TGGTAC | 0.4894 | 0 | 0 | 0 |
| Y* | TATTA | 0.2857 | 0 | 0 | 0 |
| Y* | TACTAA | 0.1429 | 0 | 0 | 0 |
| Y* | TACTAG | 0 | 0 | 0 | 0 |
| Y* | TATTAG | 0.09524 | 0 | 0 | 0 |
| Y* | TATTGA | 0.1429 | 0 | 0 | 0 |
| Y* | TACTGA | 0.3333 | 0 | 0 | 0 |
| YA | TACGCT | 0.14 | 0 | 0 | 0 |
| YA | TACGCA | 0.07505 | 0 | 0 | 0 |
| YA | TACGCG | 0.02637 | 0 | 0 | 0 |
| YA | TATGCA | 0.1968 | 0 | 0 | 0 |
| YA | TATGCT | 0.2231 | 0 | 0 | 0 |
| YA | TATGCG | 0.08722 | 0 | 0 | 0 |
| YA | TATGCC | 0.1724 | 0 | 0 | 0 |
| YA | TACGCC | 0.07911 | 0 | 0 | 0 |
| YC | TATTGT | 0.3457 | 1 | 1 | 1 |
| YC | TACTGC | 0.1173 | 0 | 1 | 0 |
| YC | TACTGT | 0.358 | 0 | 1 | 0 |
| YC | TATTGC | 0.179 | 0 | 1 | 0 |
| YD | TACGAT | 0.2575 | 0 | 0 | 0 |
| YD | TATGAT | 0.3829 | 0 | 0 | 0 |
| YD | TATGAC | 0.2174 | 0 | 0 | 0 |
| YD | TACGAC | 0.1421 | 0 | 0 | 0 |
| YE | TACGAA | 0.2557 | 0 | 0 | 0 |

| | | | | | |
|----|---------|---------|---|---|---|
| YE | TATGAG | 0.1896 | 0 | 0 | 0 |
| YE | TATGAA | 0.44 | 0 | 0 | 0 |
| YE | TACGAG | 0.1148 | 0 | 0 | 0 |
| YF | TATTTT | 0.3492 | 0 | 0 | 0 |
| YF | TACTTT | 0.2358 | 0 | 0 | 0 |
| YF | TAT TTC | 0.2585 | 0 | 0 | 0 |
| YF | TACTTC | 0.1565 | 0 | 0 | 0 |
| YG | TACGGA | 0.07509 | 0 | 0 | 0 |
| YG | TATGGA | 0.1575 | 0 | 0 | 0 |
| YG | TATGGC | 0.1044 | 0 | 0 | 0 |
| YG | TATGGG | 0.08242 | 0 | 0 | 0 |
| YG | TACGGC | 0.07692 | 0 | 0 | 0 |
| YG | TATGGT | 0.3077 | 0 | 0 | 0 |
| YG | TACGGT | 0.1484 | 0 | 0 | 0 |
| YG | TACGGG | 0.04762 | 0 | 0 | 0 |
| YH | TACCAC | 0.218 | 0 | 0 | 0 |
| YH | TACCAT | 0.2932 | 0 | 0 | 0 |
| YH | TATCAC | 0.1729 | 0 | 0 | 0 |
| YH | TATCAT | 0.3158 | 0 | 0 | 0 |
| YI | TACATA | 0.09318 | 0 | 0 | 0 |
| YI | TATATT | 0.2696 | 0 | 0 | 0 |
| YI | TATATA | 0.1231 | 0 | 0 | 0 |
| YI | TATATC | 0.1464 | 0 | 0 | 0 |
| YI | TACATT | 0.2146 | 0 | 0 | 0 |
| YI | TACATC | 0.1531 | 0 | 0 | 0 |
| YK | TATAAA | 0.318 | 0 | 0 | 0 |
| YK | TACAAG | 0.2078 | 0 | 0 | 0 |
| YK | TATAAG | 0.1674 | 0 | 0 | 0 |
| YK | TACAAA | 0.3068 | 0 | 0 | 0 |
| YL | TACTTA | 0.09882 | 0 | 1 | 0 |
| YL | TACCTA | 0.06337 | 0 | 1 | 0 |
| YL | TACTTG | 0.1224 | 1 | 1 | 1 |
| YL | TACCTC | 0.03115 | 0 | 1 | 0 |
| YL | TATTTA | 0.1643 | 0 | 1 | 0 |
| YL | TATTTG | 0.1837 | 0 | 1 | 0 |
| YL | TACCTT | 0.04189 | 0 | 1 | 0 |
| YL | TATCTC | 0.03545 | 0 | 1 | 0 |
| YL | TATCTT | 0.07841 | 0 | 1 | 0 |
| YL | TATCTA | 0.06337 | 0 | 1 | 0 |
| YL | TACCTG | 0.05693 | 0 | 1 | 0 |
| YL | TATCTG | 0.06015 | 0 | 1 | 0 |
| YM | TATATG | 0.5327 | 0 | 0 | 0 |
| YM | TACATG | 0.4673 | 0 | 0 | 0 |
| YN | TATAAT | 0.3328 | 0 | 0 | 0 |
| YN | TACAAT | 0.2662 | 0 | 0 | 0 |
| YN | TACAAC | 0.2031 | 0 | 0 | 0 |
| YN | TATAAC | 0.198 | 0 | 0 | 0 |
| YP | TATCCA | 0.2481 | 0 | 0 | 0 |
| YP | TATCCT | 0.2256 | 0 | 0 | 0 |
| YP | TATCCC | 0.08271 | 0 | 0 | 0 |
| YP | TATCCG | 0.08271 | 0 | 0 | 0 |

| | | | | | |
|----|---------|---------|---|---|---|
| YP | TACCCT | 0.09524 | 0 | 0 | 0 |
| YP | TACCCG | 0.0401 | 0 | 0 | 0 |
| YP | TACCCA | 0.1754 | 0 | 0 | 0 |
| YP | TACCCC | 0.05013 | 0 | 0 | 0 |
| YQ | TATCAG | 0.129 | 0 | 1 | 0 |
| YQ | TACCAG | 0.1095 | 0 | 1 | 0 |
| YQ | TACCAA | 0.3285 | 0 | 1 | 0 |
| YQ | TATCAA | 0.4331 | 1 | 1 | 1 |
| YR | TATCGC | 0.02457 | 0 | 0 | 0 |
| YR | TACAGA | 0.2088 | 0 | 0 | 0 |
| YR | TATCGT | 0.09091 | 0 | 0 | 0 |
| YR | TATCGG | 0.02457 | 0 | 0 | 0 |
| YR | TACAGG | 0.1081 | 0 | 0 | 0 |
| YR | TATCGA | 0.04177 | 0 | 0 | 0 |
| YR | TACCGG | 0.01474 | 0 | 0 | 0 |
| YR | TACCGC | 0.02211 | 0 | 0 | 0 |
| YR | TACCGT | 0.1007 | 0 | 0 | 0 |
| YR | TACCGA | 0.02948 | 0 | 0 | 0 |
| YR | TATAGA | 0.2064 | 0 | 0 | 0 |
| YR | TATAGG | 0.1278 | 0 | 0 | 0 |
| YS | TATTCT | 0.1642 | 0 | 0 | 0 |
| YS | TATTCA | 0.1455 | 0 | 0 | 0 |
| YS | TACAGC | 0.04229 | 0 | 0 | 0 |
| YS | TATTCC | 0.107 | 0 | 0 | 0 |
| YS | TATTCCG | 0.07338 | 0 | 0 | 0 |
| YS | TATAGT | 0.07711 | 0 | 0 | 0 |
| YS | TATAGC | 0.05597 | 0 | 0 | 0 |
| YS | TACAGT | 0.06219 | 0 | 0 | 0 |
| YS | TACTCT | 0.1107 | 0 | 0 | 0 |
| YS | TACTCG | 0.03234 | 0 | 0 | 0 |
| YS | TACTCA | 0.07836 | 0 | 0 | 0 |
| YS | TACTCC | 0.051 | 0 | 0 | 0 |
| YT | TATACC | 0.1021 | 0 | 1 | 0 |
| YT | TATACA | 0.1758 | 0 | 1 | 0 |
| YT | TATACG | 0.0983 | 0 | 1 | 0 |
| YT | TACACC | 0.08318 | 0 | 1 | 0 |
| YT | TACACG | 0.06049 | 0 | 1 | 0 |
| YT | TACACT | 0.1569 | 0 | 1 | 0 |
| YT | TATACT | 0.1739 | 1 | 1 | 1 |
| YT | TACACA | 0.1493 | 0 | 1 | 0 |
| YV | TACGTT | 0.1691 | 0 | 0 | 0 |
| YV | TACGTG | 0.07807 | 0 | 0 | 0 |
| YV | TACGTC | 0.1022 | 0 | 0 | 0 |
| YV | TACGTA | 0.07435 | 0 | 0 | 0 |
| YV | TATGTC | 0.1152 | 0 | 0 | 0 |
| YV | TATGTA | 0.08736 | 0 | 0 | 0 |
| YV | TATGTG | 0.1264 | 0 | 0 | 0 |
| YV | TATGTT | 0.2472 | 0 | 0 | 0 |
| YW | TACTGG | 0.496 | 0 | 0 | 0 |
| YW | TATTGG | 0.504 | 0 | 0 | 0 |
| YY | TACTAT | 0.2764 | 0 | 0 | 0 |

| | | | | | |
|----|--------|--------|---|---|---|
| YY | TATTAT | 0.3467 | 0 | 0 | 0 |
| YY | TACTAC | 0.2211 | 0 | 0 | 0 |
| YY | TATTAC | 0.1558 | 0 | 0 | 0 |