**Table S1**: Top-scoring codons in diverse analyses show broad agreement in *D. melanogaster*. Shaded cells indicate cases where one analysis produces a uniquely different top-scoring codon.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Amino acid** | **“Favored” codon(s) [1]** | **“Optimal” codon [2]** | **Highest frequency in ribosomal protein genes [3]** | **Most beneficial Akashi selection score  (this study)** |
| A | GCC | GCC | GCC | GCC |
| C | UGC | UGC | UGC | UGC |
| D | GAC | GAC | GAC | GAC |
| E | GAG | GAG | GAG | GAG |
| F | UUC | UUC | UUC | UUC |
| G | GGC | GGC | GGC | GGC |
| H | CAC | CAC | CAC | CAC |
| I | AUC | AUC | AUC | AUC |
| K | AAG | AAG | AAG | AAG |
| L | CUC/CUG | CUG | CUG | CUG |
| N | AAC | AAC | AAC | AAC |
| P | CCC | CCC | CCC | CCC |
| Q | CAG | CAG | CAG | CAG |
| R | CGC/CGU | CGC | CGG | CGC |
| S | UCC/UCG | AGC | UCC | UCG |
| T | ACC | ACC | ACC | ACG |
| V | GUC/GUG | GUC | GUG | GUG |
| Y | UAC | UAC | UAC | UAC |

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