

**Additional file 2.** ANOVA and contrast analyses for all group comparisons. Numbers refer to tests significances, and those in red are significant ( $P < 0.05$ ). Contrast tests assume homogeneity of variances for all variables except for "Gene length", "Protein length", " $t$ " and " $d_N$ " (which gave significant P values for the Levene test).

| Pairwise comparisons                 | Gene length <sup>a</sup> | Protein length <sup>b</sup> | C. Bias <sup>c</sup><br>N <sub>c</sub> | G+C content measures <sup>d</sup> |       |       | $t$   | $d_N$        | $d_S$ | $\kappa$ | $\omega$     |
|--------------------------------------|--------------------------|-----------------------------|--|-----------------------------------|-------|-------|-------|--------------|-------|----------|--------------|
|                                      |                          |                             |  | GC                                | GC2   | GC3   |       |              |       |          |              |
| <b>ANOVA</b>                         | <b>0.000</b>             | 0.183                       | 0.508                                  | 0.409                             | 0.427 | 0.215 | 0.404 | <b>0.022</b> | 0.530 | 0.742    | <b>0.000</b> |
| <i>Hox</i> ↔ <i>Hox</i> -derived     | <b>0.046</b>             | <b>0.043</b>                | 0.592                                  | 0.191                             | 0.658 | 0.182 | 0.347 | 0.259        | 0.297 | 0.465    | <b>0.023</b> |
| <i>Hox</i> ↔ <i>Non-Hox</i>          | <b>0.048</b>             | <b>0.021</b>                | 0.656                                  | 0.318                             | 0.227 | 0.988 | 0.161 | 0.976        | 0.330 | 0.759    | 0.063        |
| <i>Hox</i> -derived ↔ <i>Non-Hox</i> | 0.199                    | 0.821                       | 0.263                                  | 0.477                             | 0.511 | 0.087 | 0.581 | 0.259        | 0.704 | 0.522    | <b>0.000</b> |

<sup>a</sup> Gene length (in base pairs), excluding 5' and 3' UTRs (includes exons and introns only from the 'start' to the 'stop' codons in the CDS)

<sup>b</sup> Protein length (in amino acids)

<sup>c</sup> Codon Bias measure: *Effective Number of Codons* (Wright 1990)

<sup>d</sup> G+C content measures: percentage of G+C at all coding positions (GC), second coding positions (GC2) and third coding positions (GC3)