

**Supplemental Table S8.** Comparison of Spearman's correlation coefficient ( $\rho$ ) between  $\Delta E_{A-B}$  and  $S_{A/B}$  between complex and non-complex ortholog sets. Only ortholog sets with  $\bar{d}_s \leq 1$  were included in the analysis. .

Organisms	All		Complex		Non-complex	
	$\rho$ ( <i>P</i> -value)	N	$\rho$ ( <i>P</i> -value)	N	$\rho$ ( <i>P</i> -value)	N
Mammals	-0.324 (< 10 <sup>-20</sup> )	803	-0.537 (< 10 <sup>-13</sup> )	167	-0.267 (< 10 <sup>-11</sup> )	636
Flies	-0.319 (< 10 <sup>-10</sup> )	327	-0.560 (< 10 <sup>-5</sup> )	63	-0.268 (< 10 <sup>-6</sup> )	264
Worms	-0.350 (< 10 <sup>-32</sup> )	1089	-0.481 (< 10 <sup>-3</sup> )	55	-0.341 (< 10 <sup>-28</sup> )	1034