

Prolonged decay of molecular rate estimates for metazoan mitochondrial DNA

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Supplementary material

Intraspecific time-dependent rates – human case study

A separate regression analysis was performed on human mitochondrial rates against their calibration times to test for time-dependent rates at the intraspecific level. Humans were the only taxon for which there were a large number of rate estimates for a wide range of calibration times. This case study included 26 estimates of rates in the human mitochondrial control region. In the interspecific regressions, we had pooled these estimates into only a few data points. Calibrations were based on various sources of information and ranged from 25 years (one generation) to 12.5 Myr (maximum age for the *Homo-Pongo* split). Rate estimates ranged from 1.33×10^{-8} substitutions/site/year (phylogenetic estimate calibrated using the *Pan-Homo* split; Pesole *et al.* 1999) to 2.69×10^{-6} mutations/site/year (pedigree study of a Costa Rican population; Madrigal *et al.* 2012). Regression analysis produced strong evidence of a negative relationship between rate estimates and calibration times (slope -0.24, $p = 1.51 \times 10^{-7}$, $R^2 = 0.69$; Figure S1, Table S4).

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