Table 1: Statistics evaluating body mass and temperature dependence of relative brain size across vertebrates using **a.** simple multiple regression (MR), and **b.** using ANOVA to allow for differences in intercepts among taxonomic groups. Analyses in panels **a** and **b** were performed at the level of family, to partially account for any effects of phylogenetic relatedness (see methods). Panel **c** shows results for MR for data at the species level. Data are provided in Appendix 1.

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| a. Statistics from MR fit to all data shown in Figures 1 and 2 |
| Coefficients: | Estimate | 95% Conf. interval |
| Intercept | 37.20 | 32.26 - 42.14 |
| ln (M) | -0.26 | -0.31 - -0.21 |
| 1/kT | -0.96 | -1.1 - -0.83 |
| Adjusted R-squared: | 0.75 | :  |  |
| F-statistic: | 150.9 | DF= 2, 98 | P < 2.20E-16 |

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| b. Statistics from ANOVA, allowing group specific intercepts |
| Coefficients: | Estimate | 95% Conf. interval |
| Slopes |  |  |
| ln (M) | -0.34 | -0.38 - -0.30 |
| 1/kT | -0.47 | -0.69 - -0.26 |
|  |  |  |
| Intercepts |  |  |
| Amphibians | 17.52 | 9.01 - 26.02 |
| Birds | 19.54 | 10.31 - 28.78 |
| Fishes | 18.85 | 9.89 - 27.83 |
| Mammals | 20.06 | 10.88 - 29.33 |
| Reptiles | 17.75 | 8.70 - 26.80 |
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| Adjusted R-squared: | 0.90 |  |  |
| F-statistic: | 144.2 | DF= 6, 98 | P < 2.20E-16 |

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| c. Statistics from MR fit to data at species-level |
| Coefficients: | Estimate | 95% Conf. interval |
| Intercept | 37.16 | 33.05 - 41.26 |
| ln (M) | -0.27 | -0.31 - -0.23 |
| 1/kT | -0.96 | -1.06 - -0.85 |
| Adjusted R-squared: | 0.74 |  |  |
| F-statistic: | 222.4 | DF= 2, 153 | P < 2.20E-16 |