**SUPPLEMENTARY MATERIALS**

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**Table S1**. Results of linear regressions in which fossil cranial capacity (CC) was the response variable and time, in terms of millions of years ago (Ma), was the predictor variable. Negative estimate values mean that CC grew larger as we come closer to the present (Increase), positive estimate values mean CC grew smaller as we approach the present, and no significant means that there was no significant trend of CC in either direction (Stable).

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**Table S2**. Results of linear regressions in which ancestral reconstructed cranial capacity (CC) was the response variable and time, in terms of millions of years ago (Ma), was the predictor variable. Negative estimate values mean that CC grew larger as we come closer to the present (Increase), positive estimate values mean CC grew smaller as we approach the present, and no significant means that there was no significant trend of CC in either direction (Stable).

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**Table S3.** Results of multiple regression analyses in which fossil cranial capacity (CC) was the response variable and climatic measures (mean, SD, and slope of the ∂18O curve) were the predictor variables. Analyses were first conducted with all taxa grouped together, and then divided into respective taxa. Hominins were also subdivided into individuals (“Individualized hominins”). Highlighted p values are significant at <0.05. This time-series data was first analyzed non-detrended (A) and then detrended (B).

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**Table S4.** Results of multiple regression analyses in which ancestral reconstructed cranial capacity (CC) was the response variable and climatic measures (mean, SD, and slope of the ∂18O curve) were the predictor variables. Analyses were first conducted with all taxa grouped together, and then divided into respective taxa. Highlighted p values are significant at <0.05. This time-series data was first analyzed non-detrended (A) and then detrended (B).