**Supplementary Material 1: Methodology for the analysis of ẟ13C and ẟ15N in solid samples at the University of California, Davis, Stable Isotope Facility**

Samples were analyzed for 13C and 15N isotopes using a PDZ Europa ANCA-GSL elemental analyzer interfaced to a PDZ Europa 20-20 isotope ratio mass spectrometer (Sercon Ltd., Cheshire, UK). During analysis, samples were interspersed with several replicates of different laboratory reference materials, previously calibrated against international reference materials, including IAEA-600, USGS40, USGS41, USGS42, USGS43, USGS61, USGS64, and USGS65. A sample’s provisional isotope ratio was measured relative to a reference gas peak analyzed with each sample. These provisional values were finalized by correcting the values for the entire batch based on the known values of the included laboratory reference materials. The long-term standard deviation was 0.2 ‰ for 13C and 0.3 ‰ for 15N. The final delta values are expressed relative to international standards VPDB (Vienna Pee Dee Belemnite) and Air for carbon and nitrogen, respectively. For information on delta notation and the international references, please refer to a stable isotope reference such as Sharp, Z. (2005) Principles of Stable Isotope Geochemistry (Prentice Hall).