Angel MOJARRO
Final report rcvd. 1.11.22
Lewis and Clark Fund for Exploration and Field Research in Astrobiology
awarded June 08, 2020

Exceptional Biomarker Preservation and the Role of Sulfur Diagenesis in Kangerlussuaq, Greenland

Supplementary Figure 1: An unopened capelin concretion found at Kangerlussuaq with fish-like morphology.

Supplementary Figure 2: (a) Map of Greenland with (b) Kangerlussuaq.

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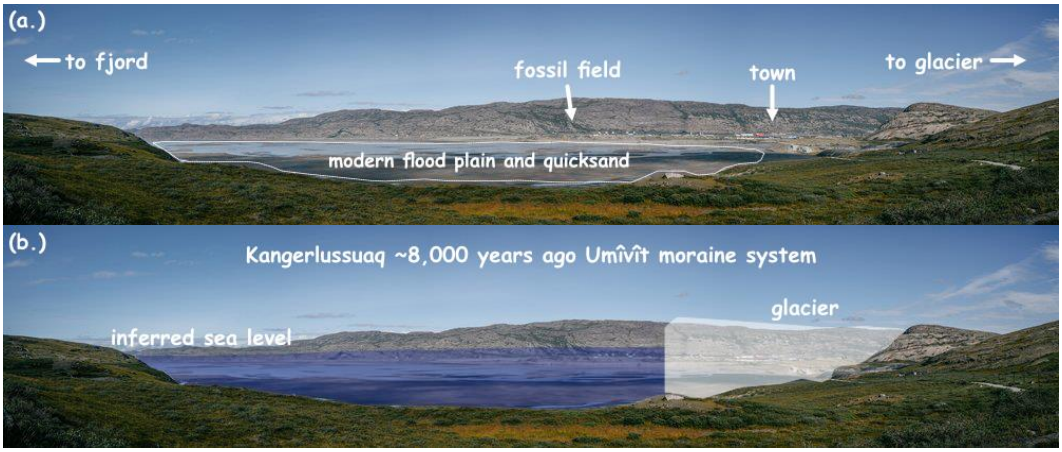
Supplemental Figure 3: Aerial view of Kangerlussuaq. The concretion-bearing glaciomarine sediments are highlighted by the dashed-white lines.

Supplemental Figure 4: Overview of modern and paleo Kangerlussuaq, Greenland.



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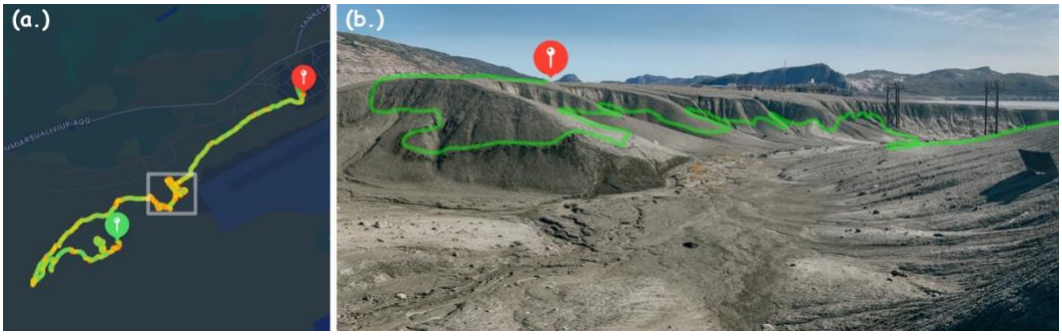
Supplementary Figure 5: Example sampling tracks from the fossil fields.



Supplementary Figure 6: Views from the glaciomarine deposits.

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Supplementary Figure 7: Opened concretions from natural freeze-thaw cycles that have become oxidized.

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Supplementary Figure 8: Example capelin concretions collected August 10th, 2021. All concretions collected during this expedition displayed exceptional preservation.

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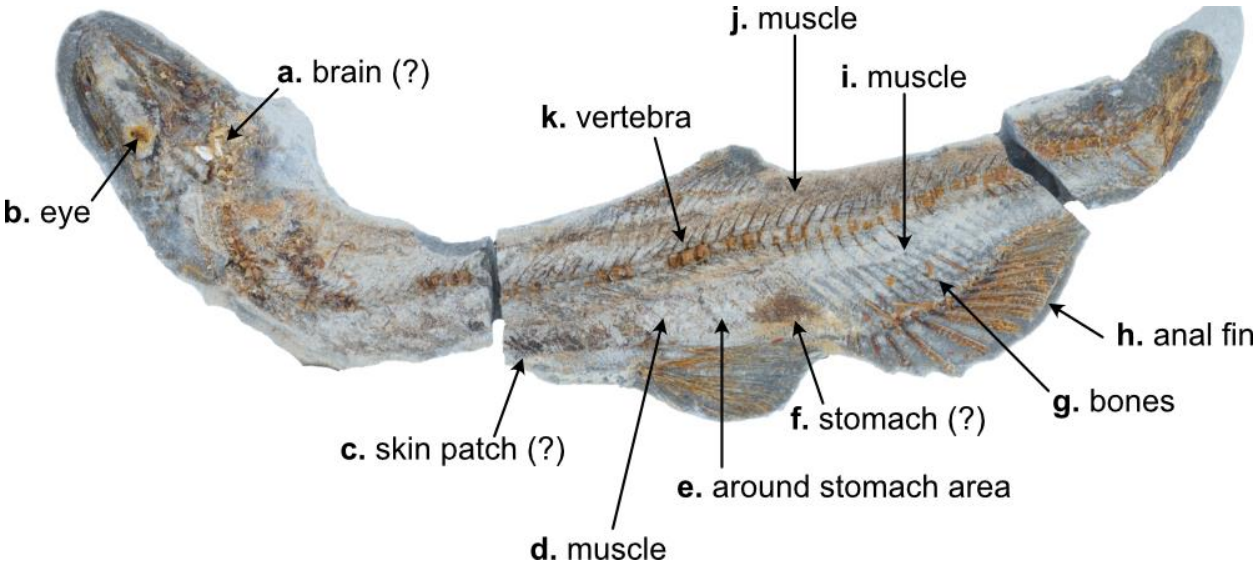
Supplementary Figure 9: Spatial sampling locations for targeted pyrolysis-GC-MS.



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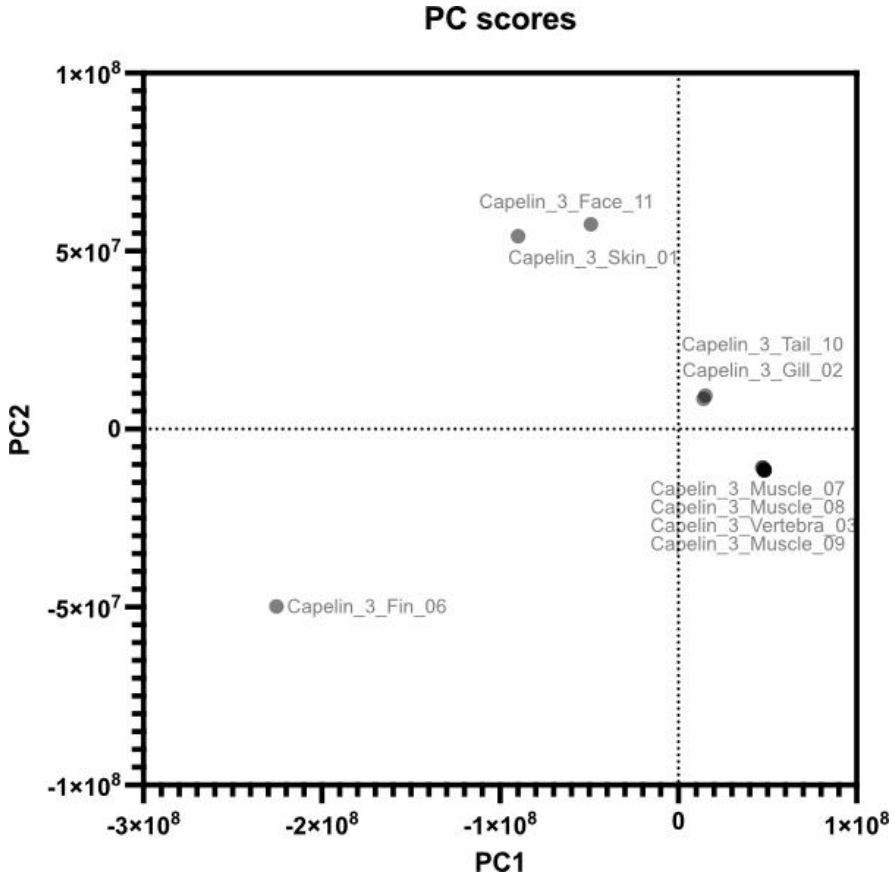
Supplementary Figure 10: Results from a multivariate analysis using the pyrolysates detected from target sampling. Capelin fin signals are strongly influenced by triazoles, face and skin by pyrroles. Muscle, vertebrae, tail, and gill are not strongly influenced by any variable.



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Supplementary Figure 11: Total ion chromatograms from various capelin tissues shown in Figure 9. Fossil 'brains' show the strongest signal of *n*-1-alkene/n-alkane doublets diagnostic of melanoidins/protokerogen. Thiophenic compounds are notably absent.