

Palaeogenomics of the Hydrocarbon Producing Microalga *Botryococcus braunii*.

Supplementary Information

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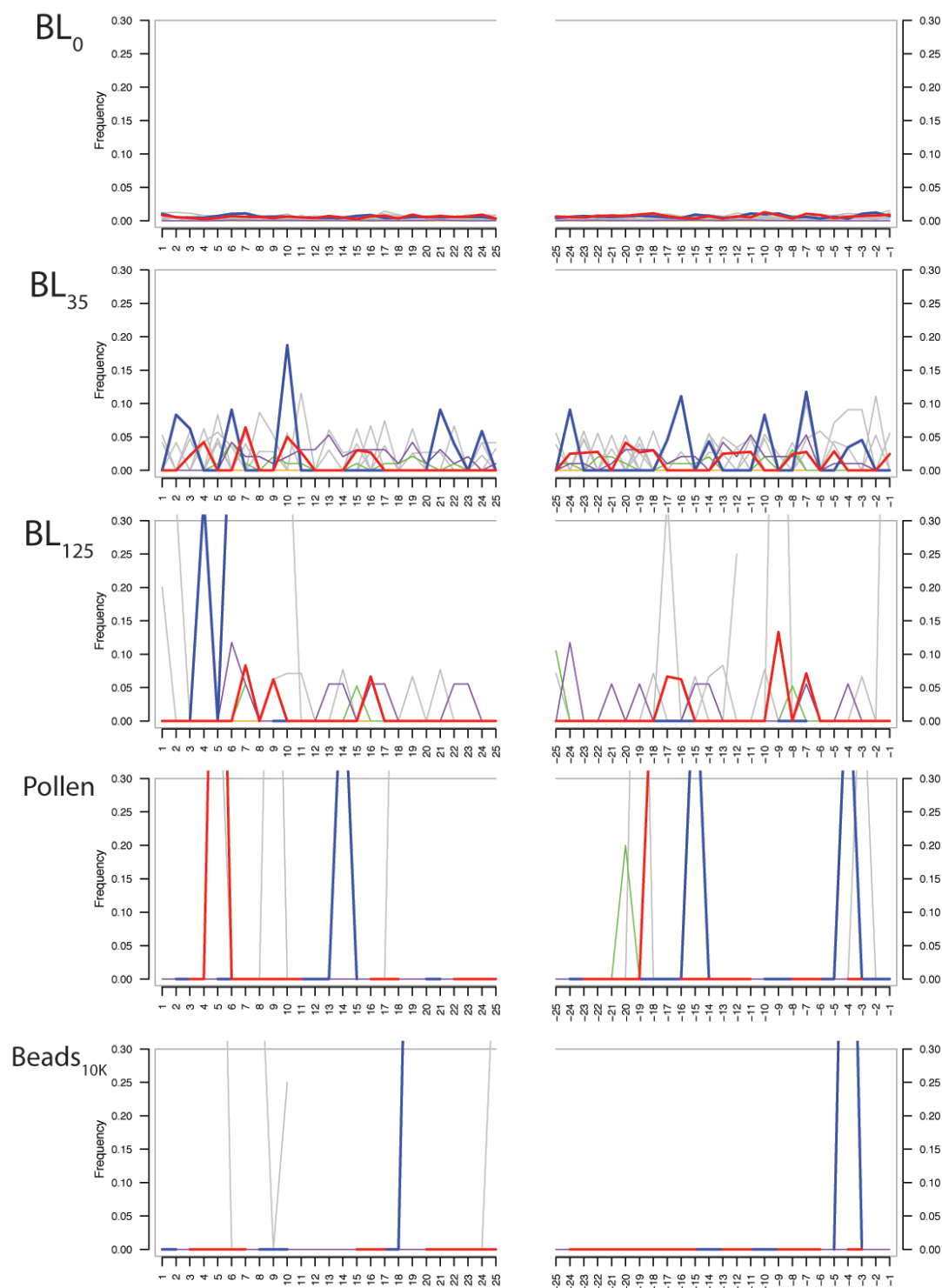
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Supplementary Figure 1. MapDamage mis-incorporation plots of samples which aligned to the *B. braunii* reference genome.

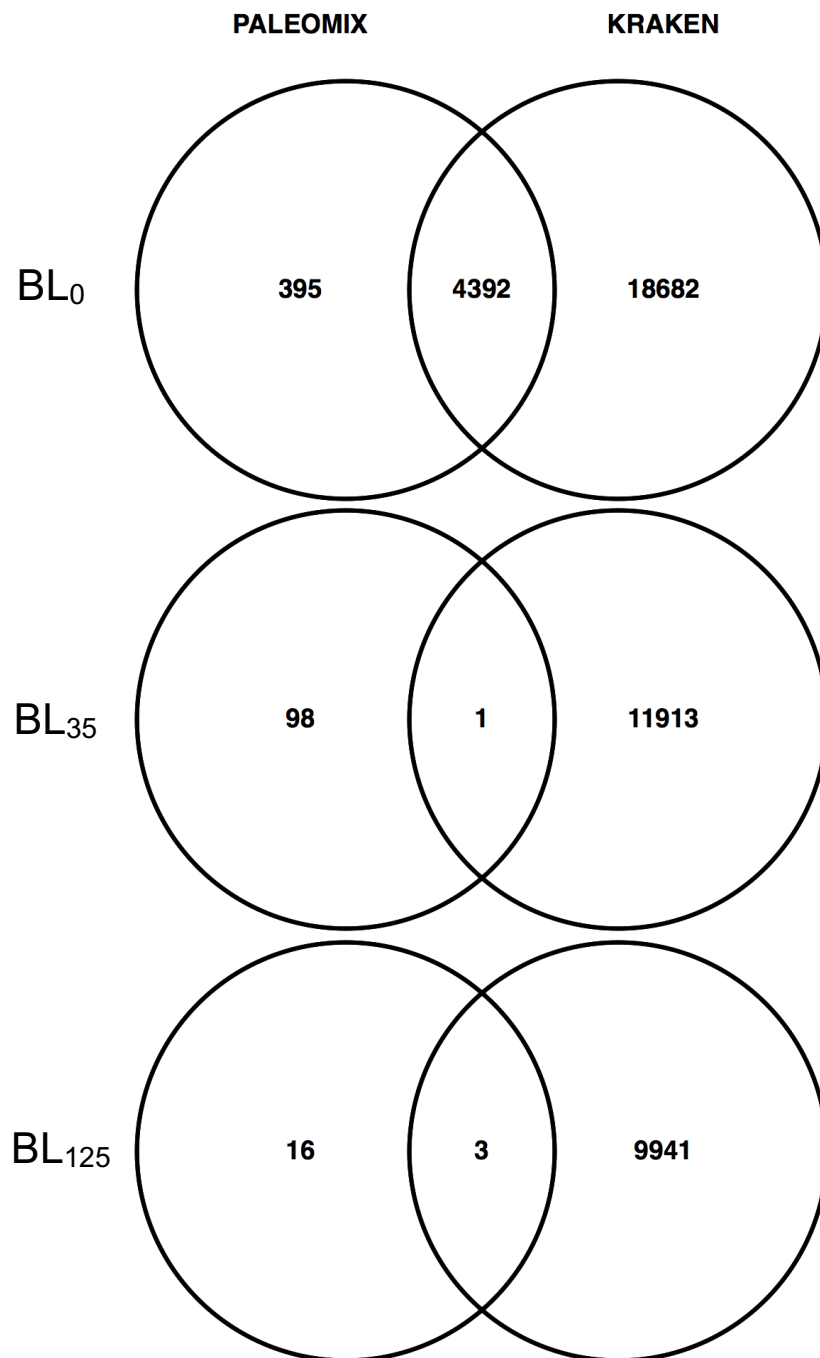
MapDamage mis-incorporation plots for samples BL₀ BL₃₅ BL₁₂₅, Pollen and 10K beads against the *Botryococcus braunii* Showa reference genome. Left panel represents the 5' DNA terminus and right panel represents the 3' DNA terminus. C to T substitutions shown in red; G to A substitutions shown in blue; all other substitutions shown in grey. Deletions are shown in green and insertions shown in purple. No data is shown for the 100,000 bead controls as no DNA sequence reads aligned.

					Prepared Library		
Sample	Depth (cm)	Age (cal yr BP)	Purified DNA (ng/ml)	Average Size (bp)	Average Size (bp)	Concentration (nmol l ⁻¹)	Unique DNA Sequences
BL ₀	0	0	25	14,578	656	180.6	10,212,204
BL ₃₅	35	1,352	146	9,444	451	51.7	20,741,232
BL ₁₂₅	125	8,406	26.8	7,890	501	92.6	14,601,912
Pollen	-	-	0	-	-	-	554,890
10K Beads	-	-	0	-	-	-	197,194
100K Beads	-	-	0	-	-	-	96,530

Supplementary Table 1. Samples of *Botryococcus braunii* sorted by flow cytometry from Boswell Lake and concentration of DNA purified from 10,000 events. '-' indicates below detectable limits.

Depth (cm)	Material Dated	^{14}C age \pm 1SD BP	Median Age (cal yr BP)	Laboratory Reference
20	Pollen	1,405 \pm 25	1,312	Wk-36776
54	Plant Macrofossil	1,519 \pm 30	1,402	ORAU OxA-26238
80	Pollen	3,392 \pm 25	3,636	Wk-36777
102	Pollen	6,874 \pm 27	7,700	Wk-36778
124	Pollen	7,554 \pm 27	8,378	Wk-41331
183	Shell	8,930 \pm 38	10,046	ORAU P-31600
235	Pollen	9,088 \pm 33	10,237	Wk-41332
264	Pollen	9,257 \pm 35	10,439	Wk-41333
315	Plant Macrofossil	10,460 \pm 90	12,357	ORAU OxA-26239

Supplementary Table 2. Plant and animal macrofossils dated from defined horizons. Samples were dated at either the University of Waikato or the University of Oxford Radiocarbon Accelerator Unit (ORAU).



Supplementary Figure 2. Venn Diagrams displaying the overlapping DNA sequence reads of samples which aligned to the *B. braunii* reference genome using PALEOMIX and Kraken2

Venn diagrams of the number of DNA sequence reads from samples BL₀, BL₃₅ and BL₁₂₅ that align to *B. braunii* using either PALEOMIX, Kraken2 or both. Venn diagrams produced using Venny 2.1