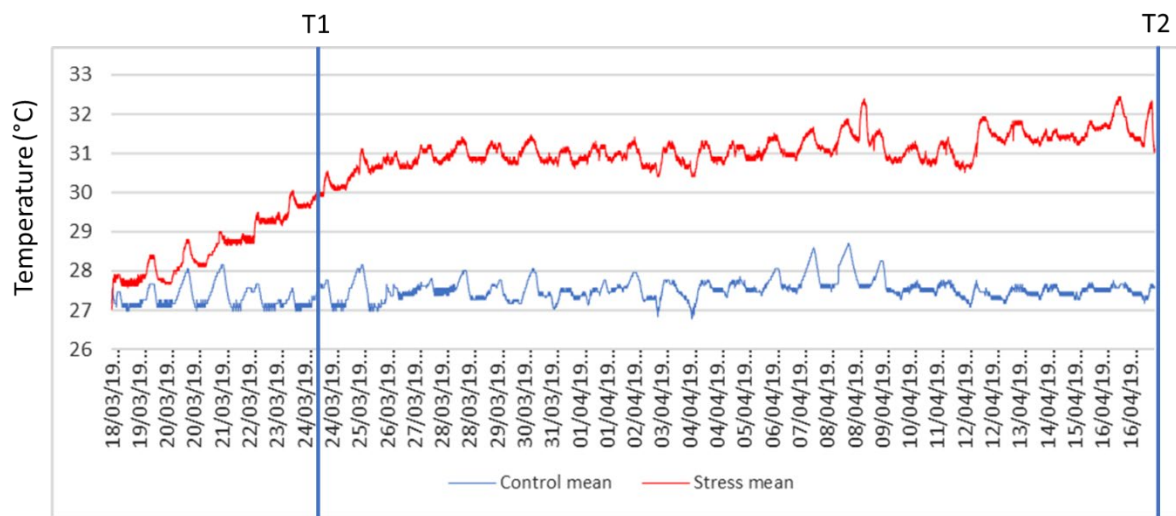
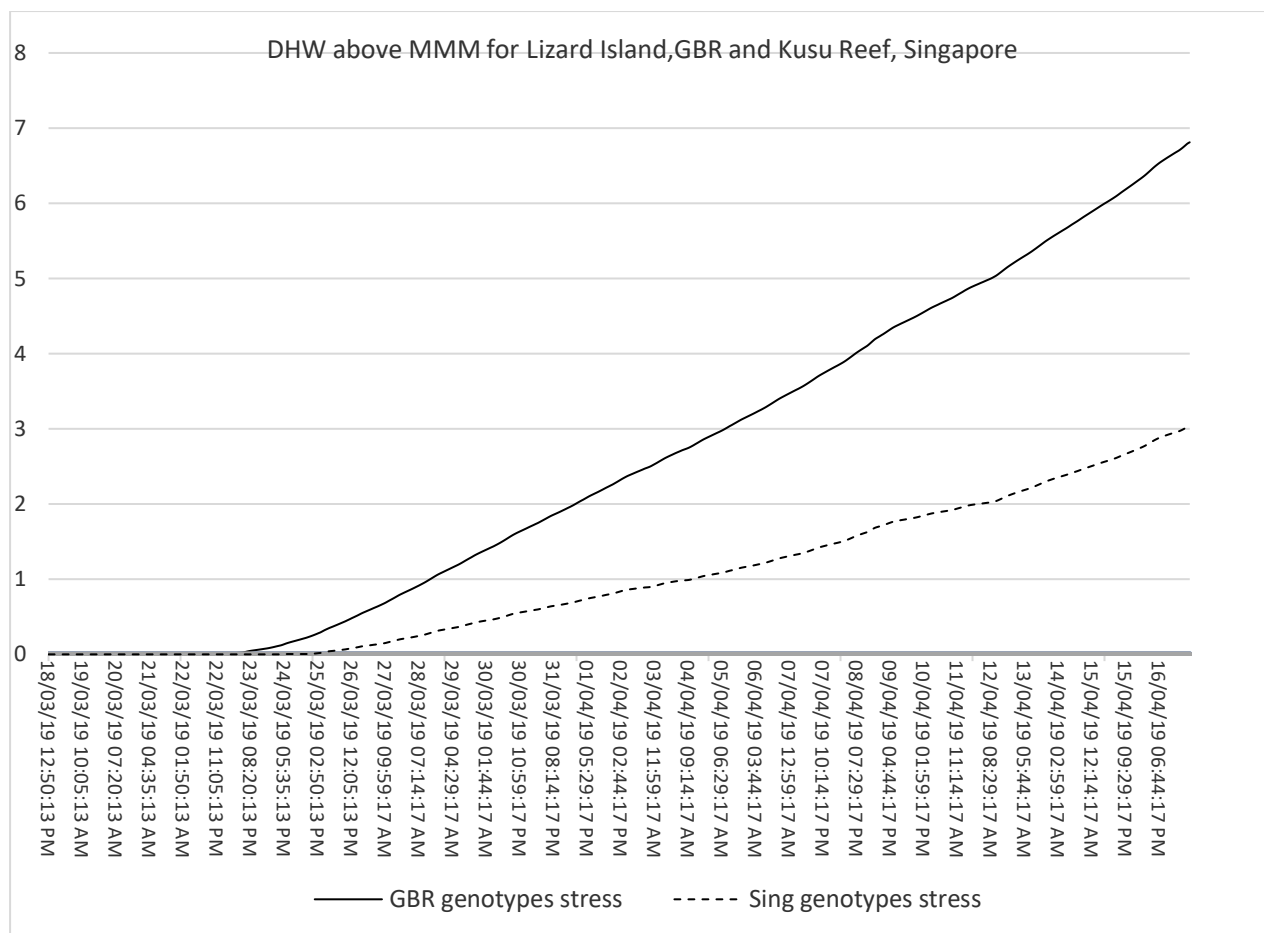


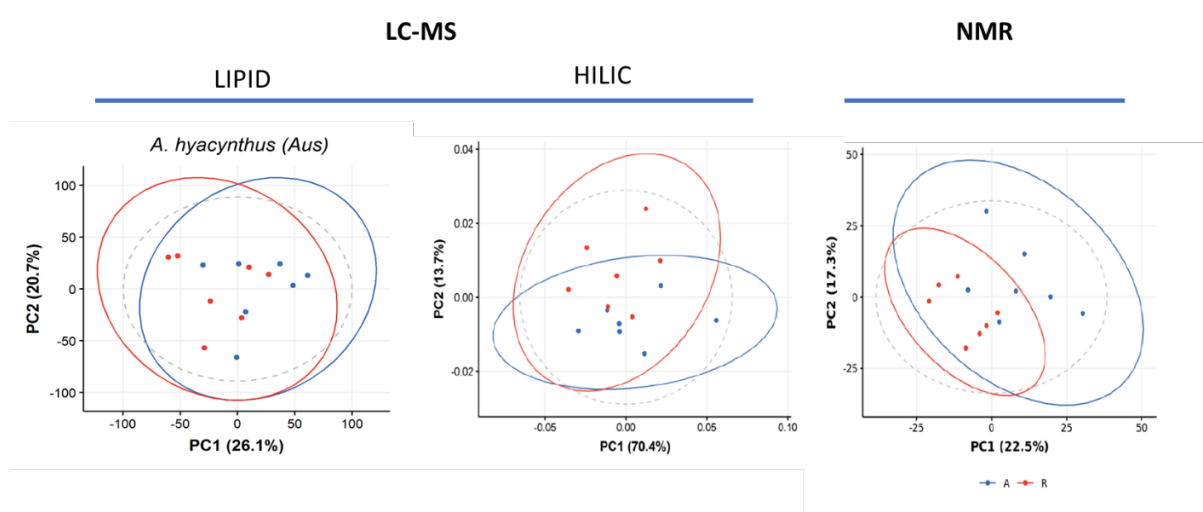
## Supplementary Material



SM Fig 1. Temperatures within control and temperature stress treatments over the 29 day *ex situ* experiment. T1 = time point 1 when the samples were taken for metabolomics. T2 = time point 2 when observations of the end fate of the coral fragments were made – see Figure 6 in the main document.

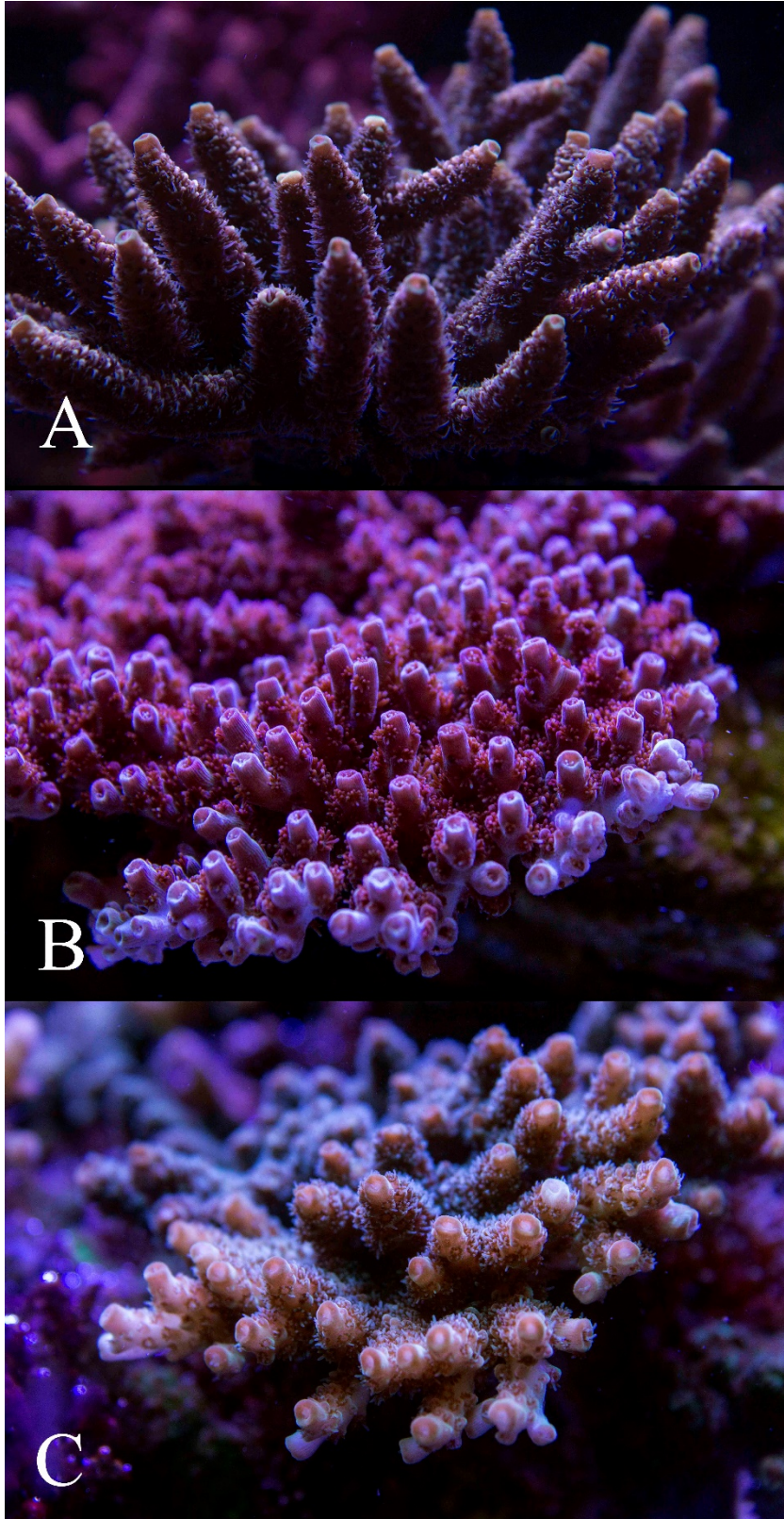


SM Fig 2. Degree heating weeks (DHW) over 29 days calculated from the hottest months from Singapore and Australia, Great Barrier Reef (Singapore = June 30.215 °C and GBR = March 29.142 °C). MMM = maximum monthly mean.



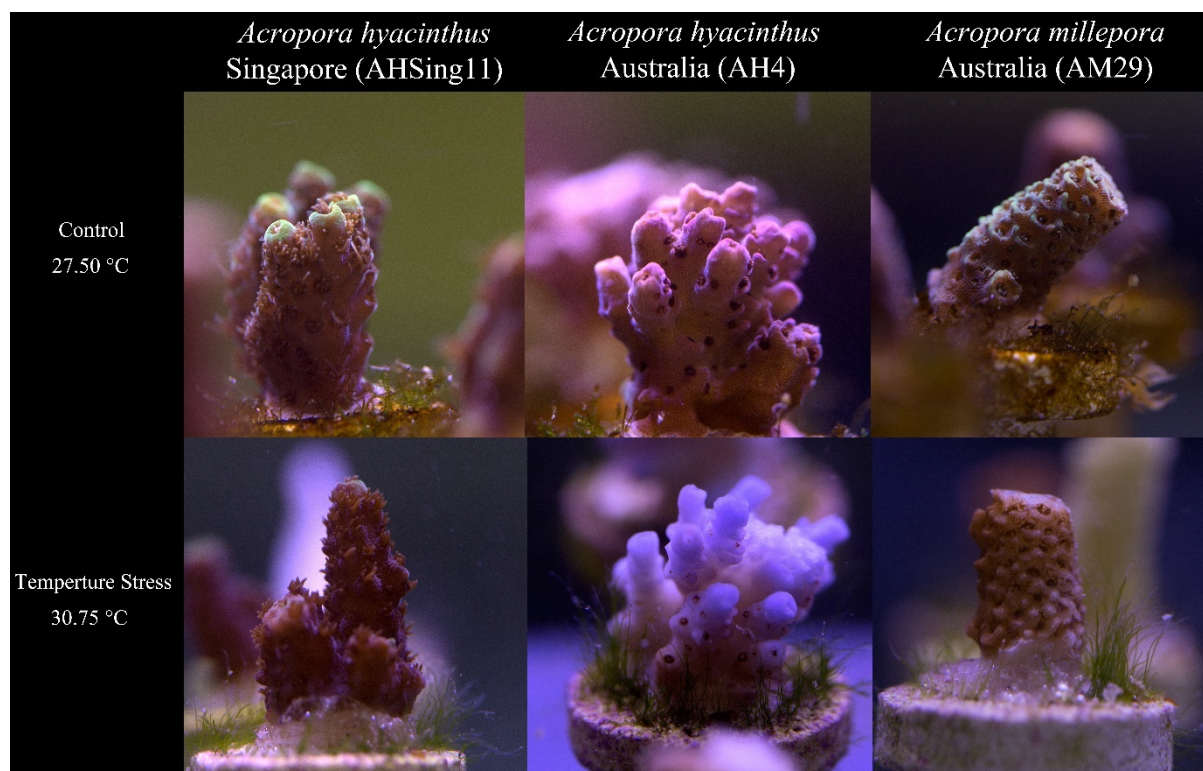
SM Fig 3. Example of the consistent results from the different metabolic profiling methods used during this study. LIPID and HILIC ultra-high-performance liquid chromatography-mass

spectrometry (LC-MS) and nuclear magnetic resonance spectroscopy ( $^1\text{H}$  NMR). Results represented here are for *Acropora hyacinthus*, from one location (Australia) and consist of both the Axial (blue dots – A) and Radial polyps (Red dots – R).





SM Fig 4. Growth structure of *Acropora millepora* and *Acropora hyacinthus* colonies from two geographical locations, GBR and Singapore following over two years of *ex situ* growth. *A. millepora* GBR (A), *A. hyacinthus* GBR (B), and *A. hyacinthus* Singapore (C).



SM Fig 5. Phenotypic variation of *Acropora hyacinthus* (Singapore), *Acropora hyacinthus* (GBR) and *Acropora millepora* (GBR) following 8 days of acute temperature stress.

**Table S1.** IPO optimised XCMS parameters used for peak picking and grouping (if different from default values) for Experiment 1 samples

Assay	min. peak width	max. peak width	ppm	<i>m/z</i> diff	bw	<i>m/z</i> wid
HILIC, negative ionisation	4	30	12	0.001	0.25	0.01
HILIC, positive ionisation	4	30	12	0.001	0.25	0.01
LIPIDS, negative ionisation	6	30	14	0.001	0.25	0.01

LIPIDS, positive ionisation	6	30	14	0.001	0.25	0.01
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**Table S2.** IPO optimised XCMS parameters used for peak picking and grouping (if different from default values) for Experiment 2 samples

Assay	min. peak width	max. peak width	ppm	<i>m/z</i> diff	bw	<i>m/z</i> wid
HILIC, negative ionisation	6	41	9	0.003114	0.25	0.001
HILIC, positive ionisation	6	41	9	0.003114	0.25	0.001
LIPIDS, negative ionisation	4	32	7	0.00065	0.25	0.01325
LIPIDS, positive ionisation	4	32	7	-0.0043	0.25	0.0157