

Table A: Parameters for *G. antarctica* growing condition

	Temperature (°C)	Days	Exposure temperature (°C)	Days	Medium
Different exposure temperatures	4	5	15 0 -12	2	YPD (Yeast Peptone Dextrose)
Different growth medium	4	7	-	-	YNB (Yeast Nitrogen Base)
Different growth phases	4	2 5 8 12	-	-	YPD YPD

Table B: Primers used in the RT-qPCR analysis

Genes	Primer sequences (5'-3')
Delta-6a fatty acid desaturase (<i>DES6a</i>)	(F) TGAGTCTCGGTTGGTGGAT
	(R) GAGGAACTGAGTGGGCTTG
Delta-6b fatty acid desaturase (<i>DES6b</i>)	(F) TCTCGTCTACCGAATCCC
	(R) CGTTGCTCGCATCCC
Delta-9a fatty acid desaturase (<i>DES9a</i>)	(F) ACCTCCTCGGATTCGCTAC
	(R) GGACGCTTCTTGGA ACTCA
Delta-9b fatty acid desaturase (<i>DES9b</i>)	(F) GCGAAGGCGGGAATGA
	(R) CGAGAAGCAGGACCAAAGG
Delta-9c fatty acid desaturase (<i>DES9c</i>)	(F) CGGACGATGTGGCTCTG
	(R) GGGAACGACGCTTGGA
Delta-12a fatty acid desaturase(<i>DES12a</i>)	(F) CCCTATCGGTCCCTACATC
	(R) GCGGCAAGTCCTCTGGTT
Delta-12b fatty acid desaturase (<i>DES12b</i>)	(F) GCGGGTGGAACTTTGT
	(R) GTGCTTGAGTGGGAGA
Delta-15 fatty acid desaturase (<i>DES15</i>)	(F) TACTACGGTCCGCTCAACA
	(R) CTA CTCCAAAGCCCAACG
Anti-freeze protein 1 (<i>AFP1</i>)	(F) CTCCTGCTCGTCAAAG
	(R) GCCAGCGAAGTCCCTCT

Anti-freeze protein 2 (<i>AFP2</i>)	(F) CCTCCGCAAAGGTCATTC (R) AGCATAGGCGTTTCCAGT
Anti-freeze protein 3 (<i>AFP3</i>)	(F) ACGCTACCAACATCG (R) GAAGGGAGCAACAAC
Anti-freeze protein 4 (<i>AFP4</i>)	(F) GTGTCTCGAAAGGGAGC (R) GGGACGAAGGGAGAGTT
Anti-freeze protein 5 (<i>AFP5</i>)	(F) CTCGTCTCTCTCCTCGTCG (R) GCAGGGGAAACTCCAATG
Anti-freeze protein 6 (<i>AFP6</i>)	(F) TCTACGAGCCCGACCCA (R) CCGTGACCGTGATGAGT
Anti-freeze protein 7 (<i>AFP7</i>)	(F) CTCACCGATTATGCC (R) CAAAGTCCTGCCACC
Anti-freeze protein 8 (<i>AFP8</i>)	(F) CGACTACTGTTCGGGAGAC (R) GAAGAGCGTGACGACTGAC
Anti-freeze protein 9 (<i>AFP9</i>)	(F) TTCACCGTTCAAGCCCC (R) GGAGACAAATCCTTCCACAG
