

Appendix 1: comparison of the repeated elements of some individuals from *G. olivacea*, *G. pallida*, and *C. lapponica*. Dots indicate nucleotides identical to the state in the consensus sequence. Dashes indicate the absence of a nucleotide.

GoliDK (*G. olivacea*)

Consensus	ATTGTTAATTTTATCT-GTTTAAATTTTCTGAACATCTTTAATGGGATATTGAATGTCAAGGATTTTAAATTTAATTTTATTAATATTTTGGATAATTTTATATT-----	[143]
repeat1	.....G.....	[143]
repeat2	..AGA.....TC-AG.....C.....G.....A.....G.....	[143]
repeat3	..A..G.....C.....	[143]
repeat4	.....T.....G.....C.....A.....G.....	[143]
repeat5	..A..G.....C.....	[143]
repeat6	.....T.....G.....T.....C.....	[143]
repeat7	..AGA.....TC-AG.....G.....C.....A.....G.....	[143]
repeat8	..A..G.....C.....	[143]
repeat9	.....T.....GT.....CT..A.TC.....C.....G.....	[143]
repeat10	.....C-AG.....T.....T..T.A.....C.....	[143]
repeat11	..A..A.....-A.....	[143]
repeat12	..AGA.....-A.....C.....	[143]
repeat13	.....T.....C.....A.TTG...A.....C.....G.....C.G.ATTACAAATTTTATTGTATGGGAAATTTTATCTTT	[143]
repeat14	..G..A.....TC-A.....	[143]
repeat15	.....C-AG.....T.....T.....C.....	[143]
repeat16	..AGA.....G..G.TA.....G...T.....A.T...T.G.A.....	[143]

GoliB2 (*G. olivacea*)

Consensus	ATTGTTAATTTTATCT-GTTTAAATTTTCTGAACATCTTTAATGGGATATTGAATGTCAAGGATTTTAAATTTAATTTTATTAATATTTTGGATAATTTTATATT-----	[143]
repeat1	.....G..T.....A.....	[143]
repeat2	..A..G.....T.....A.....T.....G.....	[143]
repeat3	.....G.....	[143]
repeat4	..A..G.....A.....G.....	[143]
repeat5	..A..CG.....G.....G.....A.....G.....	[143]
repeat6	..A..G.....T.....A.....T.....G.....	[143]
repeat7	.....G.....	[143]
repeat8	..G.....T..A..A.....GT...T...T..A.TC.....C.....G.....C...TTGGTAAATTTTATTCATT-----	[143]
repeat9	T.G..A.....TC-A.....A.....T.....A.C.....T.....C.....	[143]
repeat10	..AGA.....A.TCG.....A...C...G.....-TA.....C.G.ATTACAAATTTTATTGTATGGGAAATTTTATCTTT	[143]
repeat11	..G.....C-AG.....T.....C.....	[143]
repeat12	.....TC-AG.....T.....C.....	[143]
repeat13	..AGA.....A.....A.TTG.....A...C...G.....C.G.ATTACAAATTTTATTGTATGGGAAATTTTATCTTT	[143]
repeat14	..G.....C-AG.....T.....T.....C.....	[143]
repeat15	.....C-AG.....T.....T..A.....C.....	[143]
repeat16	..AGA.....C..T..A.....G..T.....A.T...T.G.A.....	[143]

GoliB3 (*G. olivacea*)

Consensus	ATTGTTAATTTTATCT-GTTTAAATTTTCTGAACATCTTTAATGGGATATTGAATGTCAAGGATTTTAAATTTAATTTTATTAATATTTTGGATAATTTTATATT-----	[143]
repeat1	.....G..T.....A.....	[143]
repeat2	..A..G.....T.....A.....T.....G.....	[143]
repeat3	.....G.....	[143]
repeat5	..A..CG.....G.....G.....A.....G.....	[143]
repeat6	..A..G.....T.....A.....T.....G.....	[143]
repeat7	.....G.....	[143]
repeat8	..G.....T..A..A.....GT...T...T..A.TC.....C.....G.....C...TTGGTAAATTTTATTCATT-----	[143]
repeat9	T.G..A.....TC-A.....A.....T.....A.C.....T.....C.....	[143]
repeat10	..AGA.....A.TCG.....A...C...G.....-TA.....C.G.ATTACAAATTTTATTGTATGGGAAATTTTATCTTT	[143]
repeat11	..G.....C-AG.....T.....C.....	[143]
repeat12	.....TC-AG.....T.....C.....	[143]
repeat13	..AGA.....A.....A.TTG.....A...C...G.....C.G.ATTACAAATTTTATTGTATGGGAAATTTTATCTTT	[143]
repeat14	..G.....C-AG.....T.....T.....C.....	[143]
repeat15	.....C-AG.....T.....T..A.....C.....	[143]
repeat16	..AGA.....C..T..A.....G..T.....A.T...T.G.A.....	[143]

GpalFO1 (*G. pallida*)

Consensus	ATTTTTTAAATGGTTTATTTTAAATTTTATATTAAATGGGTTATCTTATTTTAAAGTTTGGGAAATTTAAATTTAAGAATAAATTATATATCTTGAATTTAGTGGGATAAATTAAGTTATGTATATTTAATATTG	[141]
repeat1	..A.....C.....	[141]
repeat2	.....C.....	[141]
repeat3	.....G.....	[141]
repeat4	.....G.....	[141]
repeat5	.....G.....	[141]
repeat6	.....G.....	[141]
repeat7	.....G.....	[141]
repeat8	.....G.....	[141]
repeat9	.....Y.....T.....	[141]
repeat10	.....C.....	[141]
repeat11	.....C.....	[141]
repeat12	.....C.....	[141]
repeat13	.....A.....	[141]
repeat14	.....C.....	[141]

ClapF (*C. lapponica*)

Consensus	GAAAAATTTAATCTACCGATGTTTCAATGAGTTGTGAATTAAGGGAATATTTTGTGACCCATTTGAATAATCTCGTTAAATTTATAAATATGGGATTTTATGAATTAAGATTGCTAAGTCTGGCCACCATGCTAAATAGGTTTTA--CCTA	[159]
repeat1	.....T.....A.TT.....G..A.....G.....G.....A.....A..A..TTTG.GCTA.GTAA..TA.TT.A.T.AGG..TAG....	[159]
repeat2	T.....TT.....GTG..C.TT...T...G.G...A..G....	[159]
repeat3	..G.....T.....TT.....GTG..C.CT...T...G.G...A..G....	[159]
repeat4	.....T.....T.....G.....	[159]
repeat5	.....T.....G.....	[159]
repeat6	.....T.....C.....	[159]
repeat7	.....G.....T.....C.....	[159]
repeat8	.....T.....C.....	[159]
repeat9	.....T.....C.....	[159]
repeat10	.....T.....G.....	[159]
repeat11	.....T.....G.....	[159]
repeat12	.....G.....T.....C.....	[159]
repeat13	.....T.....C.....	[159]
repeat14	.....T.....T.....	[159]
repeat15	.....T.....	[159]