

Table S1. Primers used in this study. Red: for IES test; yellow: for amplify the unknown sequences from the contigs' end to the telomeres; green: for scrambling detection; blue: for Q-PCR confirmation of rDNA copy number.

Primer name	sequence (5'-3')	Note
IES05521_f230	CACTCCTAAAAATAGAGCTAGGG	
IES05521_r649	CTGATTCAATAAATTGTCAG	
tolemere	CAACCCCAACCCCAACC	
chr_158_f1057	GTGGGCAAATTATGAAAAGGC	
chr_104_r535	GGAATCTCTAAGGTAACAATACTG	
chr_065_r453	CCGTATTATATGGTTATATGGCCGAATG	
chr_153_r666	GTGATCCGAAGCCATTCATAAAGCCAC	
chr_019_r588	GATTTTCTCAAGCATTTTTCAATGG	
JH659681_f163	CTATTCATATCTATCATCAGCG	P3
JH659681_r6029	GACTTTTGC GTTTTACCATCAACAAC	P3
JH659668_f404	CAAATGGATGGTTCAGGATTTTGG	P10
JH659668_r6277	CATAACTAGCCTAATACACCTCTTC	P10
JH659689_f355	GATTTAACTCAGTGCGTTGGTC	I3
JH659689_r6238	GCCCTTCAGAAAATTTGCATATCCC	I3
chr_105_f507	GAGGAAAAGTGAGGTCTGGCGATC	I3
chr_105_r3488	GATGAGGGATTGCGACTTGCTAGC	I3
chr_064_r4315	GTAATAGACTTAGCACAGTTGTTTG	P3
chr_064_f766	CAATGAACTCATCCTAGATTAG	P3
chr_101_f558	GAGGAAGTGAGATAAGCATTGATGG	P10
chr_101_r2548	GCTAAATTTCCCCCTAAGTCTTTTAG	P10
chr_134_f50	CAGTATTTATTTTCTCATCAAAGATC	Typical region in Figure 3B
chr_134_r432	GGAAAAGTGAGGTCTGGGGCAAC	Typical region in Figure 3B
JH660039_f404	CCTATACCTTTTCGATCCTAATCCC	Typical region in Figure 3B
JH660039_r1270	CATATTCAAAATTGCACTTG	Typical region in Figure 3B
JH660039_f597	GCCCAGTTCCTTTTGGTCTCAC	Typical region in Figure 3B
JH660039_r1584	CTTTCAATGTGTTTTTCCC	Typical region in Figure 3B
JH659799_f297	GATGGAGATGGTGGTGGTAGTGG	Typical region in Figure 3B
JH659799_r1088	CTAAAATGTCAATTACGTGC	Typical region in Figure 3B
rDNA_f133	TATATTCTGCTAATTTCACTGGTG	
rDNA_r308	CTCATTTTTTAGAACCTATTTTGCTTG	
rDNA_f564	GTAAAATAGTTTTAGGAATATGAG	
rDNA_r831	CTAAGTCTTTTTTCAACTCTC	
rDNA_f996	CATAAAACAATTTTAACAGCATGCG	
rDNA_r1154	CTAGATAAACTTTTTCTTTAAGTTCTC	
rDNA_f1492	GACTCGCTTAATATTTCGCGG	
rDNA_r1611	CTCATTTTTAAGCGAGTCTGCTTC	
rDNA_f1956	TTGGGCAACCAAGGATAACG	
rDNA_r2090	CCATTTGCTCTAATACGAGCC	
rDNA_f2663	GATTACATGGATAACCGAGCTAATTG	
rDNA_r2879	GTGACTGCCATGGTAGTCCAATAC	
rDNA_f3505	AGACGATCAGATACCGTCGTAGTC	
rDNA_r3817	AACCAGACAAATCACTCCACCAAC	
rDNA_f4425	TTTCAACGGTGGATATCTAGGTTT	
rDNA_r4569	CCACACTGAAACAAACATGAAGG	

rDNA_f5416	GAAACACGGACCAAGGAGTCTATC	
rDNA_r5674	ACTCAAATTTGACGAACGATTTGC	
rDNA_f6641	CCTCTGGTCCATAGAACAATGTAG	
rDNA_r6865	TTTGTCCGCTTCAGTTCTGAGTTG	
rDNA_f7632	CGATCCTGTAAAACCACTACCCAC	
rDNA_r7810	CACTTAGGACGCCTGCGTTATGG	
rDNA_f9073	GTGACTAAAGCAGTCCCAGAGCC	
rDNA_r9366	CAATATAGGTCTTTGACGGCTGGAG	
rDNA_f9739	GCGTGTA AAAATGCGCTAAACTACGC	
rDNA_r9909	ATCTCATAAATTATAGAGATCAACC	