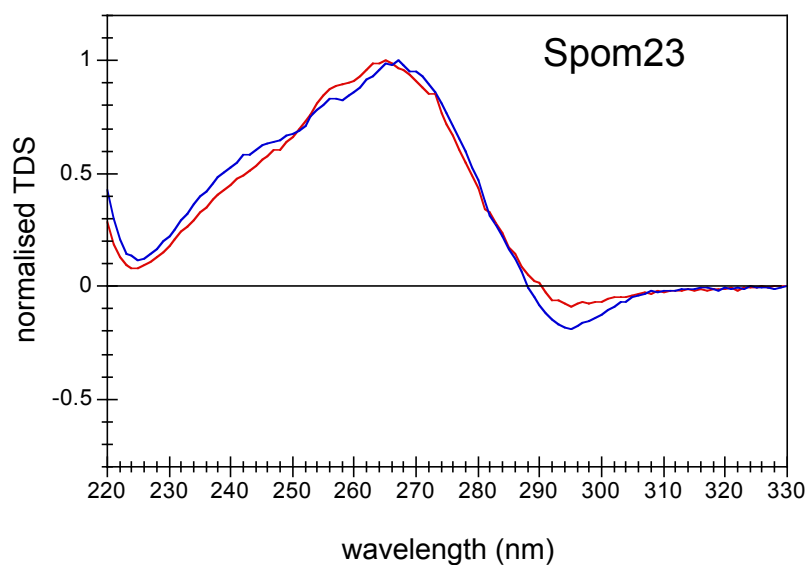
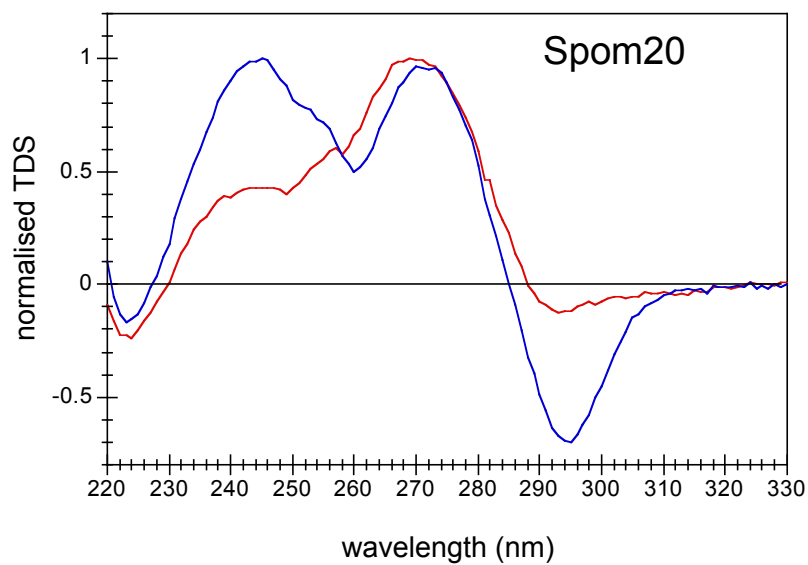


# **Stability of telomeric G-quadruplexes**

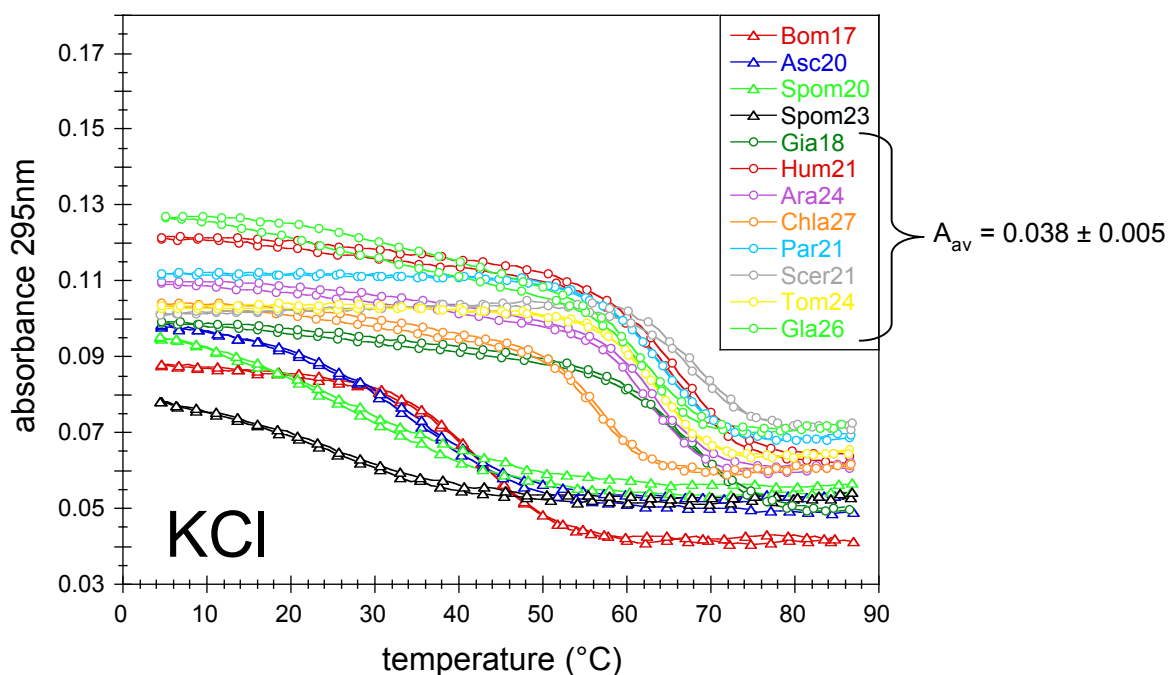
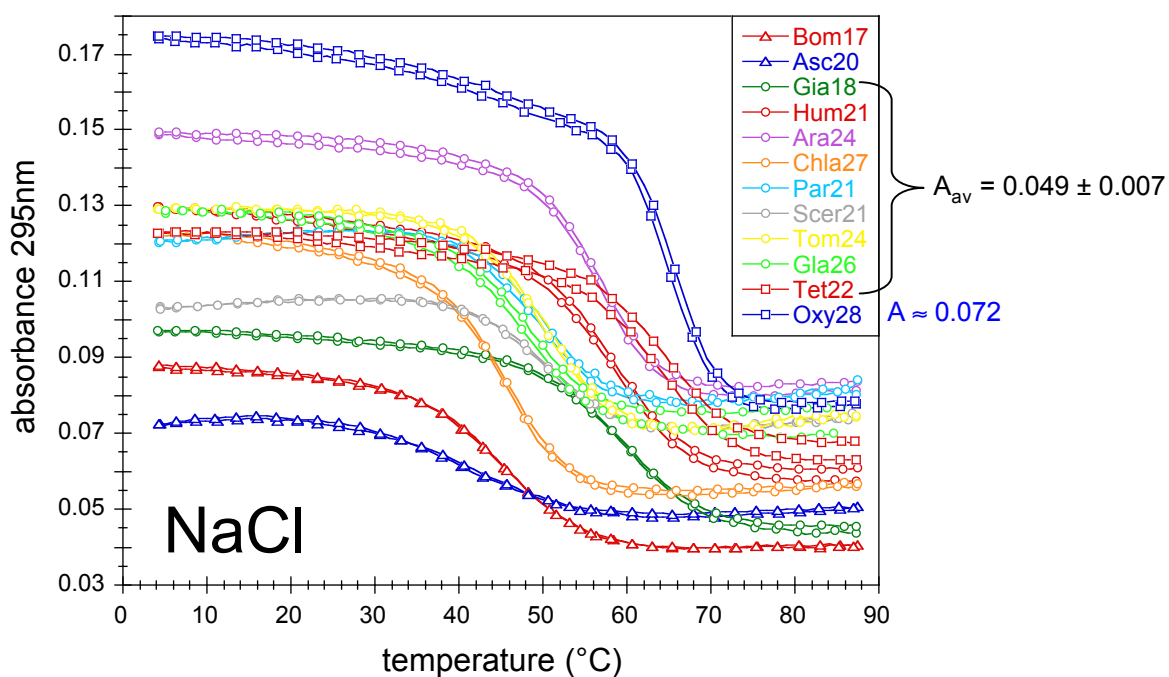
Phong Lan Thao Tran, Jean-Louis Mergny & Patrizia Alberti

## **Supplementary Data**



**Figure S1**

Normalised TDS of Spom20 and Spom23 in NaCl (red) and KCl (blue) (100 mM) at 3  $\mu$ M oligonucleotide strand concentration. For Spom20 in NaCl and Spom23 in NaCl and KCl, the small negative peak at 295 nm (small compared to TDS of Spom20 in KCl and to other TDS of G-quadruplexes) suggests that a very minor fraction of oligonucleotide folds into G-quadruplexes.

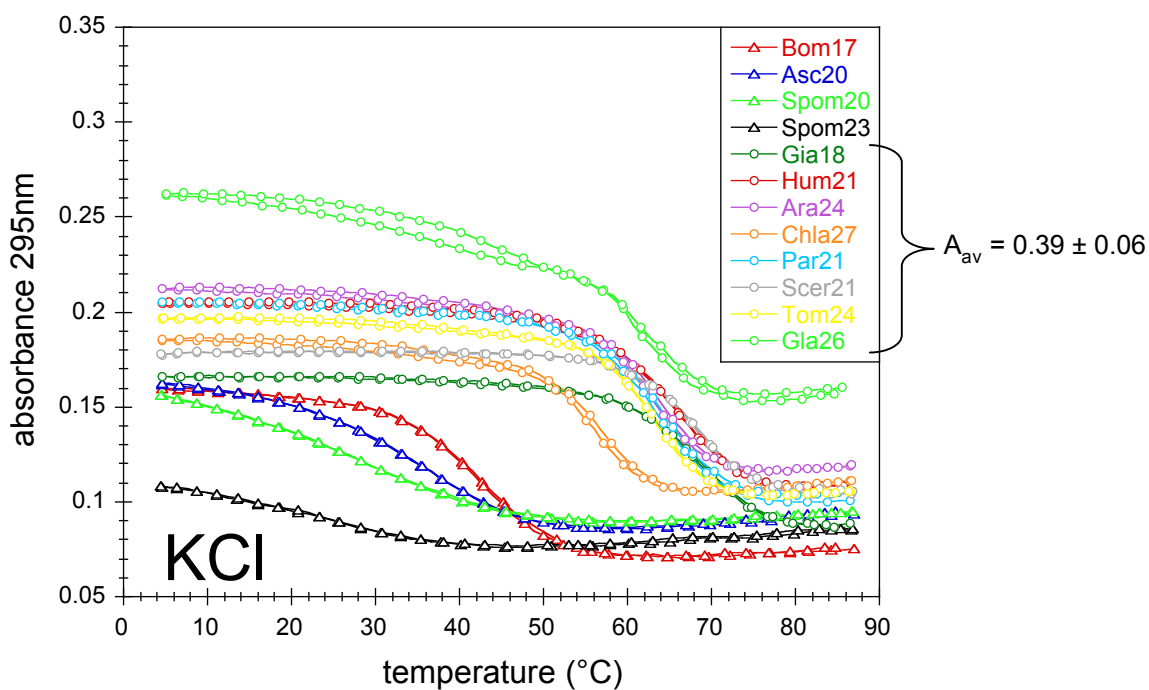
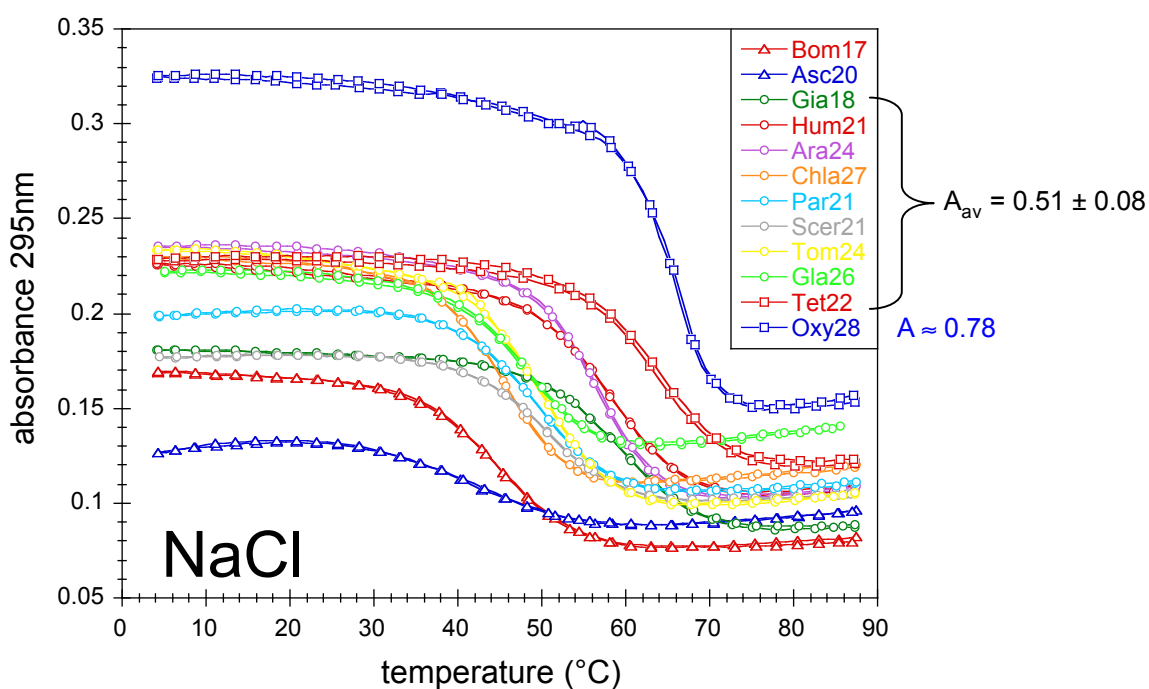


**Figure S2**

Melting curves (cooling and heating) at 295 nm in NaCl and KCl (100 mM), at 3  $\mu$ M oligonucleotide strand concentration (1 cm optical path length).

The amplitudes ( $A$ ) or average amplitude ( $A_{av}$ ) of the transitions (in absorbance) are reported next to the graph legend.  $A$  were calculated at  $T_m$ , after low- and high-temperature absorbance linear baseline determination.

Spom20 and Spom23 did not fold into G-quadruplexes in NaCl.

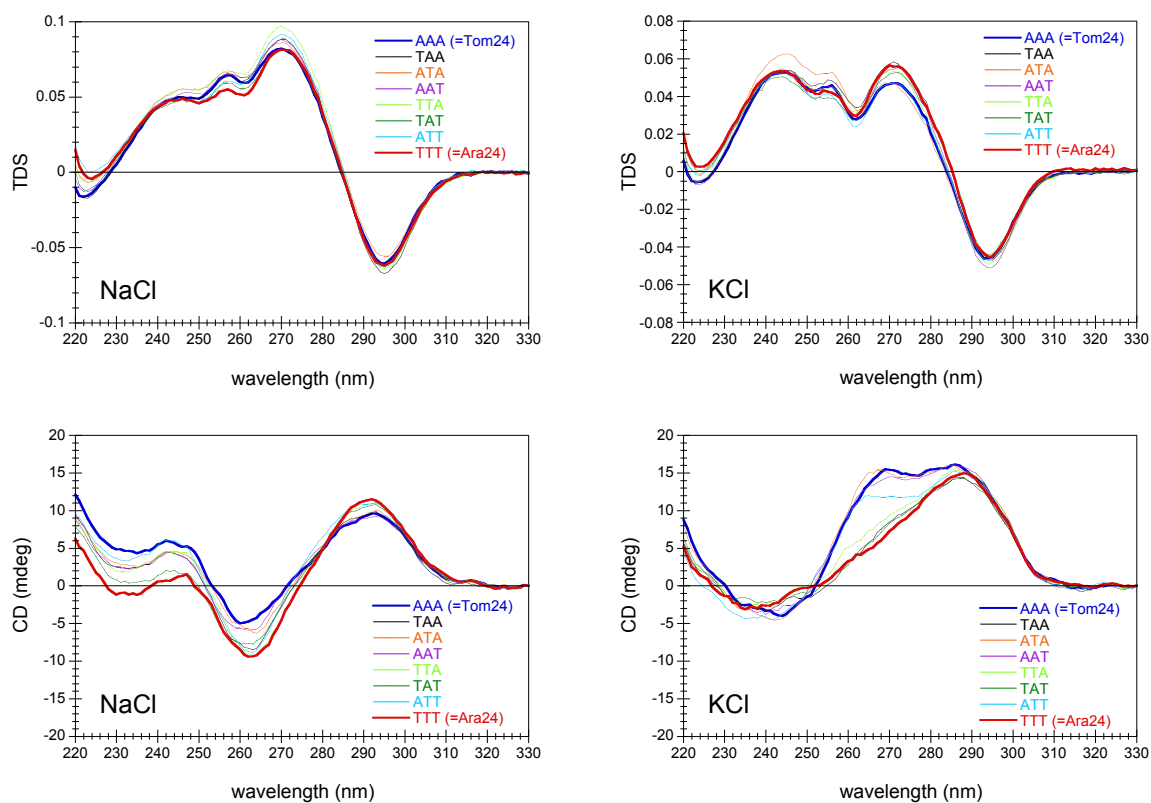


**Figure S3**

Melting curves (cooling and heating) at 295 nm in NaCl and KCl (100 mM), at 30  $\mu$ M oligonucleotide strand concentration (0.2 cm optical path length).

The amplitudes ( $A$ ) or average amplitude ( $A_{av}$ ) of the transitions (in absorbance) are reported next to the graph legend.  $A$  were calculated at  $T_m$ , after low- and high-temperature absorbance linear baseline determination. The amplitudes  $A$  and  $A_{av}$  were multiplied by 1/0.2 to take into account the optical path length and allow a straight comparison with the amplitudes at 3  $\mu$ M oligonucleotide strand concentration.

Spom20 and Spom23 did not fold into G-quadruplexes in NaCl.



Name sequence	Sequence (from 5' to 3')
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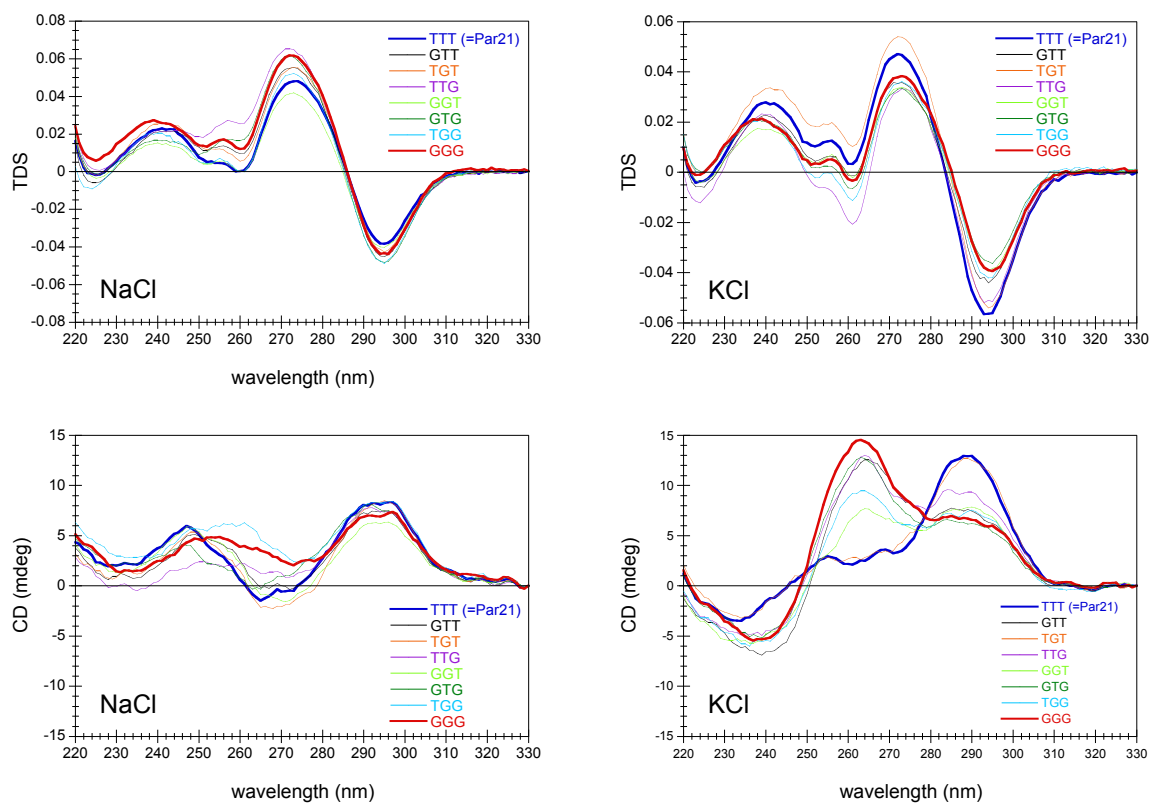
Tom24	GGGTTAAGGGTTAAGGGTTAAGGG
TAA	GGGTTTAGGGTTAAGGGTTAAGGG
ATA	GGGTTAAGGGTTTAGGGTTAAGGG
AAT	GGGTTAAGGGTTAAGGGTTTAGGG
TTA	GGGTTTAGGGTTTAGGGTTAAGGG
TAT	GGGTTTAGGGTTAAGGGTTTAGGG
ATT	GGGTTAAGGGTTTAGGGTTTAGGG
Ara24	GGGTTTAGGGTTTAGGGTTTAGGG

**Figure S4**

TDS and CD spectra of the possible combinations of 3.5 repetitions of the tomato plant degenerate telomeric motif in NaCl and in KCl (100mM) at 3  $\mu$ M oligonucleotide strand concentration.

CD spectra were acquired at 20°C on a Jasco-815 after annealing from 96°C at a rate of 1.3°C min<sup>-1</sup>

For these measurements, new batches of Tom24 and Ara24 were used.  
Melting temperatures are reported in Main Text.



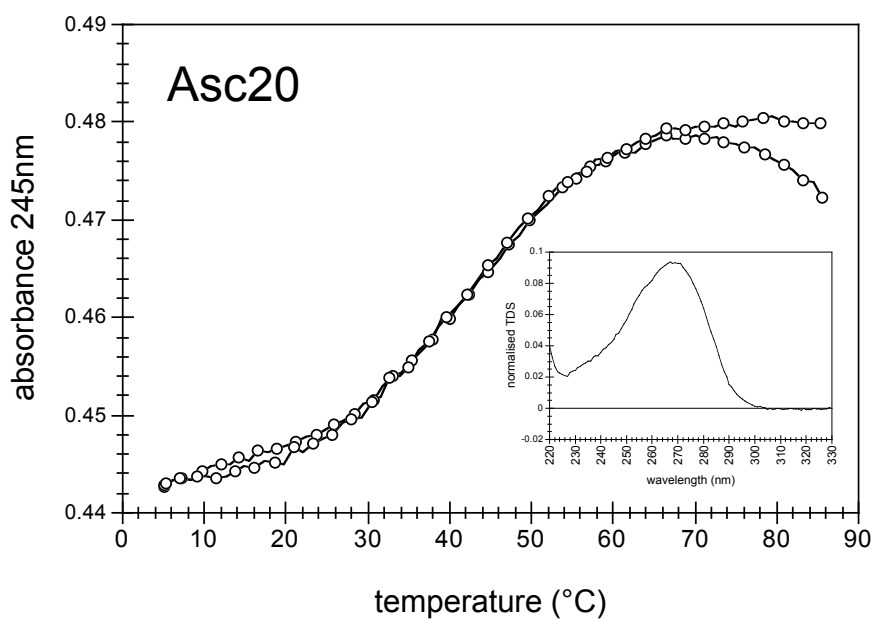
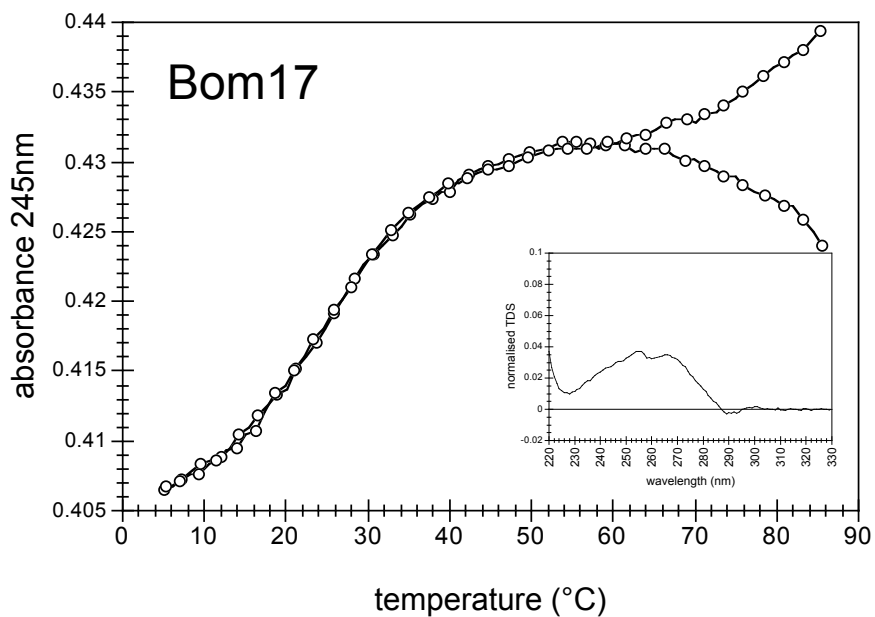
Name sequence	Sequence (from 5' to 3')
Par 21	GGGTTTGGGTTTGGGTTTGGG
GTT	GGGGTTGGGTTTGGGTTTGGG
TGT	GGGTTTGGGGTTGGGTTTGGG
TTG	GGGTTTGGGTTTGGGGTTGGG
GGT	GGGGTTGGGGTTGGGTTTGGG
GTG	GGGGTTGGGTTTGGGGTTGGG
TGG	GGGTTTGGGGTTGGGGTTGGG
GGG	GGGGTTGGGGTTGGGGTTGGG

**Figure S5**

TDS, CD spectra of the possible combinations of 3.5 repetitions of *Paramecium* degenerate telomeric motif in NaCl and in KCl (100 mM) at 3  $\mu$ M oligonucleotide strand concentration.

CD spectra were acquired at 20°C on a Jasco-815 after annealing from 96°C at a rate of 1.3°C min<sup>-1</sup>.

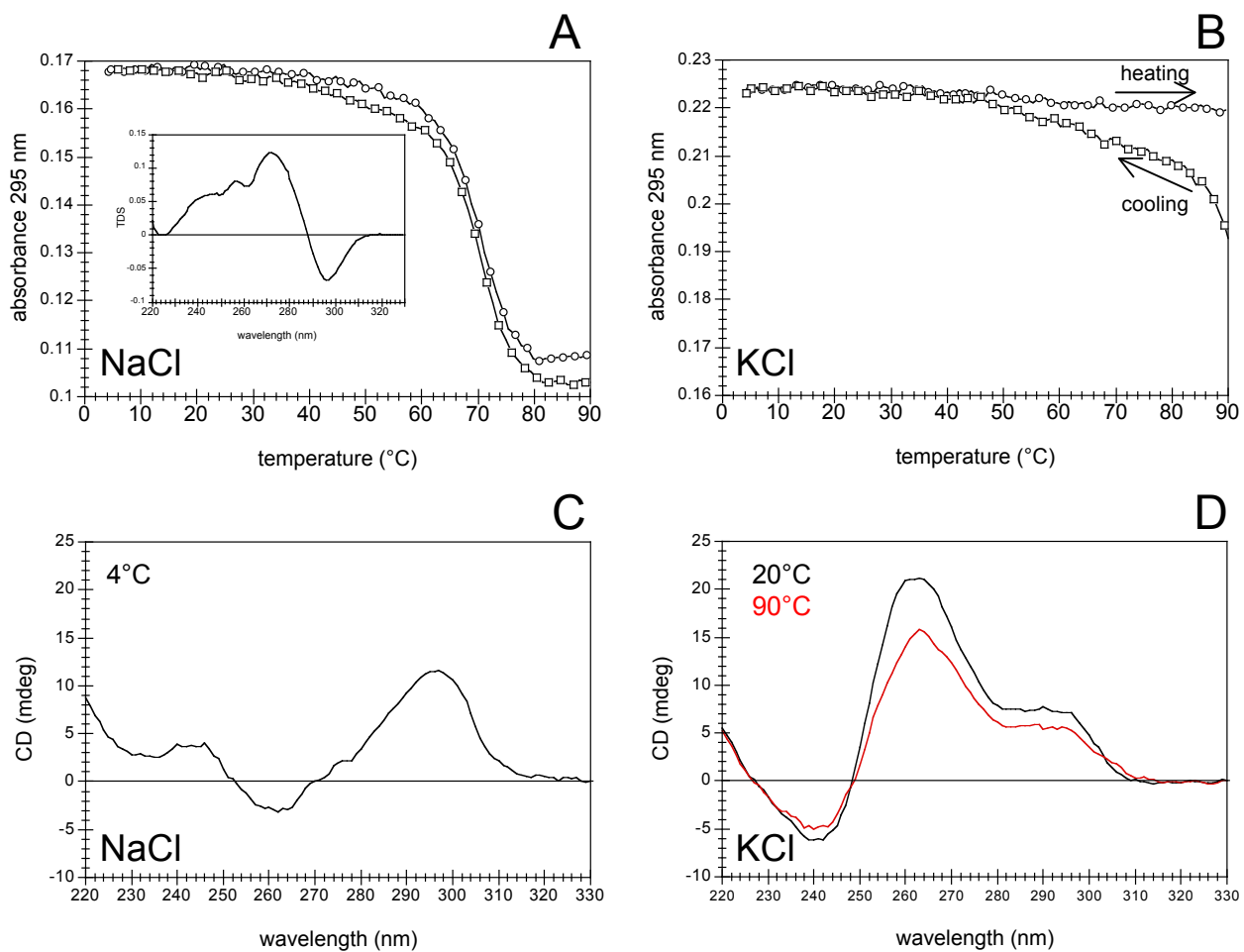
For these measurements, a new batch of Par21 was used.  
Melting temperatures are reported in Main Text.



**Figure S6**

TDS and melting temperature at 245 nm of Bom17 and Asc20 in LiCl (acid cacodylic 10 mM, pH 7.2 adjusted with LiOH, LiCl 100 mM) at 3  $\mu$ M oligonucleotide strand concentration.

TDS indicated that Bom17 and Asc20 did not fold into G-quadruplexes in LiCl; melting experiments revealed a transition around 38°C for Asc20 and around 25°C for Bom17, suggesting folding into non-G-quadruplex structures.



**Figure S7**

TDS, melting curves at 295 nm and CD spectra of the *C. merolae* telomeric sequence  $5'(G_6A_2T)_3G_6 3'$  at 3  $\mu\text{M}$  strand concentration, in NaCl and KCl (100mM).

CD spectra at 4 °C or 20 °C were recorded after slowly cooling (in a metal block) at room temperature from 96 °C.

In NaCl, the sequence folded into G-quadruplex(es), as revealed by TDS (Figure A, inset), with a  $T_m$  of 70 °C (Figure A).

In KCl, no melting transition was observed either at 295 nm (Figure B) or 240 nm.

In KCl, the presence of structure(s) (very likely G-quadruplexes) was revealed by CD spectroscopy (Figure D).

The CD spectrum did not change upon heating the sample from 20 °C to 90 °C, indicating that the structure(s) did not melt.