

Supporting Information

Table 1S. Line Parameters for Kinetics Data

Duplex	Slope	Y-intercept	R ²
Arrhenius Plots			
(CAG):(GTC) ₄	-9.09e3	43.95	0.792
(CAG):(GTC) ₁₀	-11.3e3	49.37	0.927
(CAG):(GTC) ₁₅	-14.7e3	61.21	0.781
(CCG):(GGC) ₄	-3.38e3	25.47	0.221
(CCG):(GGC) ₁₀	-4.99e3	29.80	0.691
(CCG):(GGC) ₁₅	-7.21e3	36.85	0.852
Kinetic Dependence on [Na ⁺]			
(CAG):(GTC) ₄	2.48e6	5.54e6	0.774
(CAG):(GTC) ₁₀	5.10e5	9.71e5	0.896
(CAG):(GTC) ₁₅	1.06e6	1.91e6	0.859
(CCG):(GGC) ₄	2.66e6	2.66e6	0.404
(CCG):(GGC) ₁₀	8.94e5	2.01e6	0.521
(CCG):(GGC) ₁₅	1.34e6	2.74e6	0.661

Table 2S. Free energies of the hairpin to single strand transitions for individual oligonucleotides and for the duplex to single strand transitions for duplexes made from complementary oligonucleotides of the same length. Values for longer duplexes of [(CGG):(GCC)] are not included due to incomplete transitions (See reference 5).

Oligomer	Length (Nucleotides)	ΔG_{37C} (kcal/mol)
(CAG) ₄	12	0.4 ± 0.02
(CAG) ₁₀	30	3.4 ± 0.07
(CAG) ₁₅	45	4.3 ± 0.2
(CTG) ₄	12	0.0 ± 0.2
(CTG) ₁₀	30	6.4 ± 0.3
(CTG) ₁₅	45	10.9 ± 0.4
(CGG) ₄	12	1.4 ± 0.07
(CGG) ₁₀	30	11.9 ± 0.4
(CGG) ₁₅	45	19.6 ± 0.8
(CCG) ₄	12	0.2 ± 0.01
(CCG) ₁₀	30	2.4 ± 0.1
(CCG) ₁₅	45	3.5 ± 0.1
[(CAG):(GTC)] ₄	12	4.0 ± 0.02
[(CAG):(GTC)] ₁₀	30	18.5 ± 0.7
[(CAG):(GTC)] ₁₅	45	31.5 ± 1.4
[(CGG):(GCC)] ₄	12	6.2 ± 0.3

Figure 1S

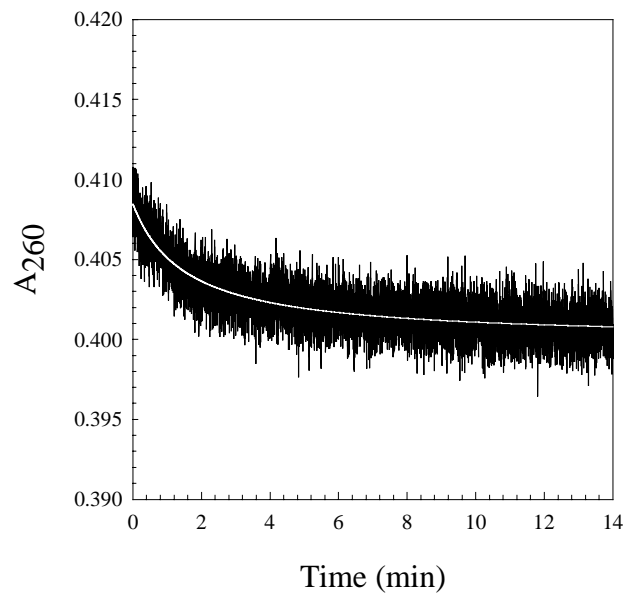


Figure 1S. Typical absorbance decay upon mixing an oligonucleotide hairpin with its complement of the same length. Data shown is for duplex formation of $[(\text{CGG}):(\text{GCC})]_{10}$ at 37 °C. The raw data is shown in black and the best non linear fit for a second order reaction shown in white.