

SUPPORTING INFORMATION The supplemental figures are

Figure S1: Circular dichroism spectra of $1 \mu\text{M}$ $(5'-\text{CGCGCAATTGCGCG}-3')_2$ without (solid) and with (dotted) 3 m triethylene glycol.

Figure S2. Comparison of the absorbance of $5'-\text{CGCGCAATTGCGCG}-3')_2$ vs. temperature without (open squares, right axis) and with 3 m triethylene glycol (open circles, left axis). The melting temperatures are 55°C and 46°C , respectively.

Figure S3. Continuous variation analysis at a total concentration of 100 nM oligonucleotide and Hoechst using 3 m triethylene glycol. The emission intensities are plotted relative to the mole fraction with respect to Hoechst. The fluorescence emission was measured using an emission wavelength of 446 nm and excitation wavelength of 358 nm . The inflection at $X_{\text{Hoechst}} = 0.5$ corresponds to 1 Hoechst:oligonucleotide.

Figure S4: Plot of the natural logarithm of the observed equilibrium constant for the association of Hoechst with DNA as a function of the concentration of acetamide (top), betaine (middle), and tetraethylene glycol (bottom). Linear least-squares fit using Eq. 8 gives 51 ± 6 for acetamide, 51 ± 3 for betaine, and 67 ± 8 for tetraethylene glycol. The extrapolation to a 0.12 m for the buffer gives $K = 2.8 (\pm 0.8) \times 10^8 \text{ M}^{-1}$ for acetamide, $3.5 (\pm 0.4) \times 10^8 \text{ M}^{-1}$ for betaine, and $0.8 (\pm 0.3) \times 10^8 \text{ M}^{-1}$ for tetraethylene glycol. These values are similar to the $K = 2.5 (\pm 0.4) \times 10^8 \text{ M}^{-1}$ measured in the buffer alone at 25°C .

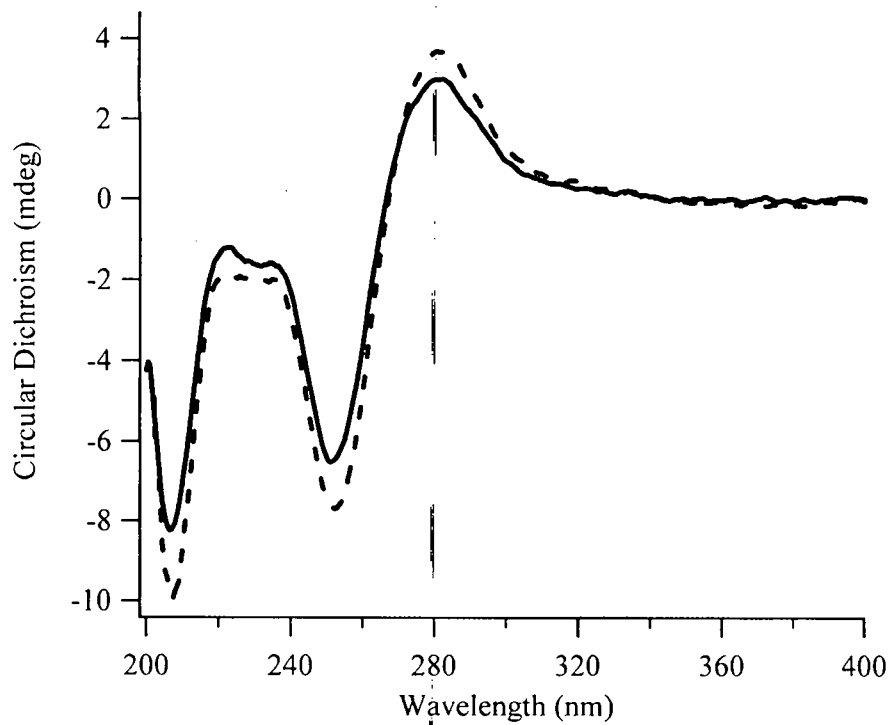


Figure S1

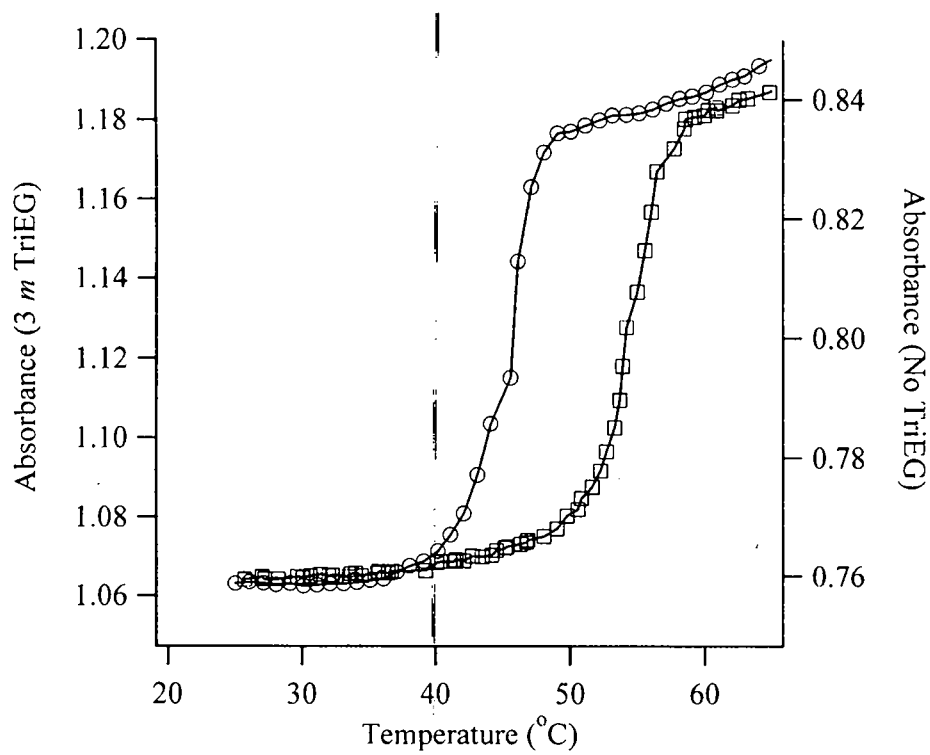


Figure S2

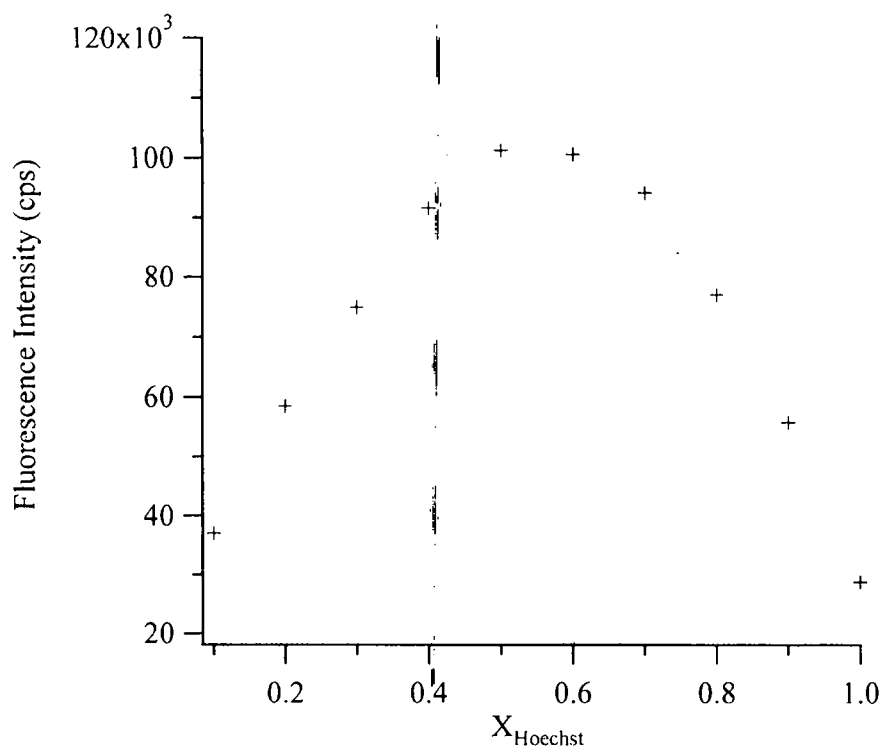


Figure S3

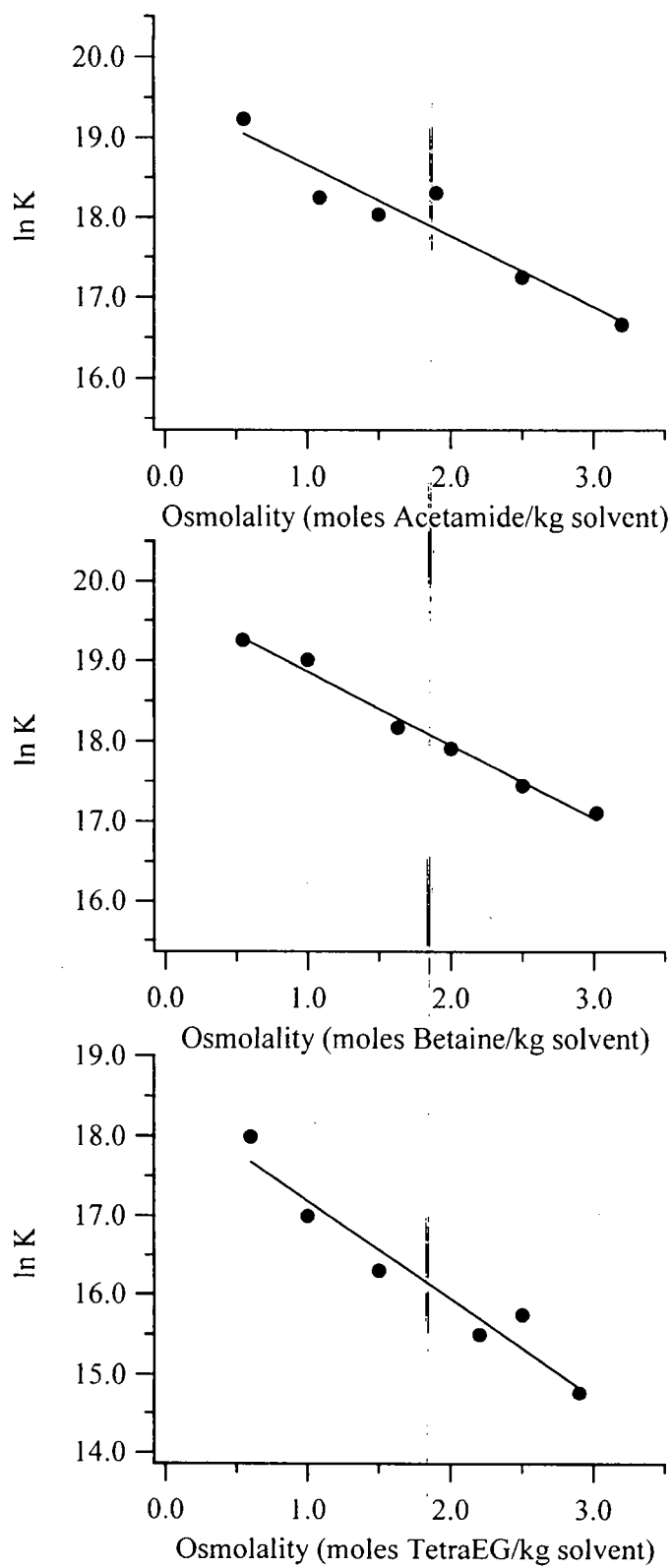


Figure S4