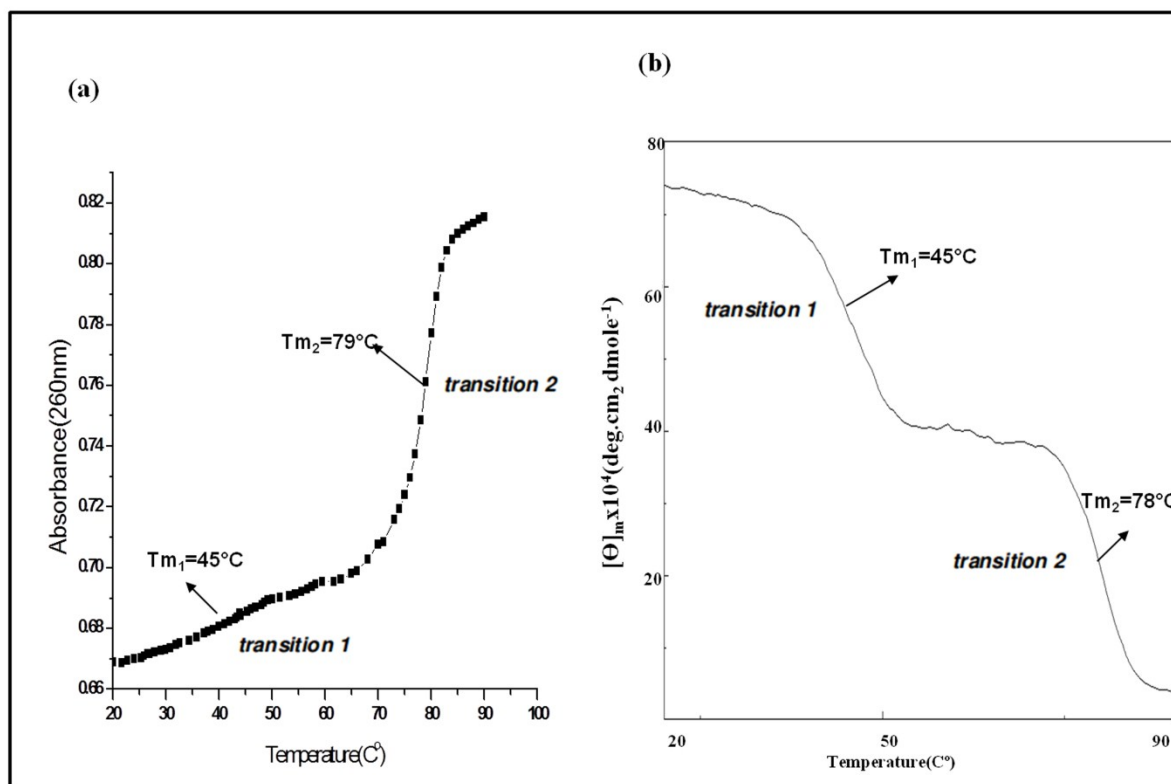
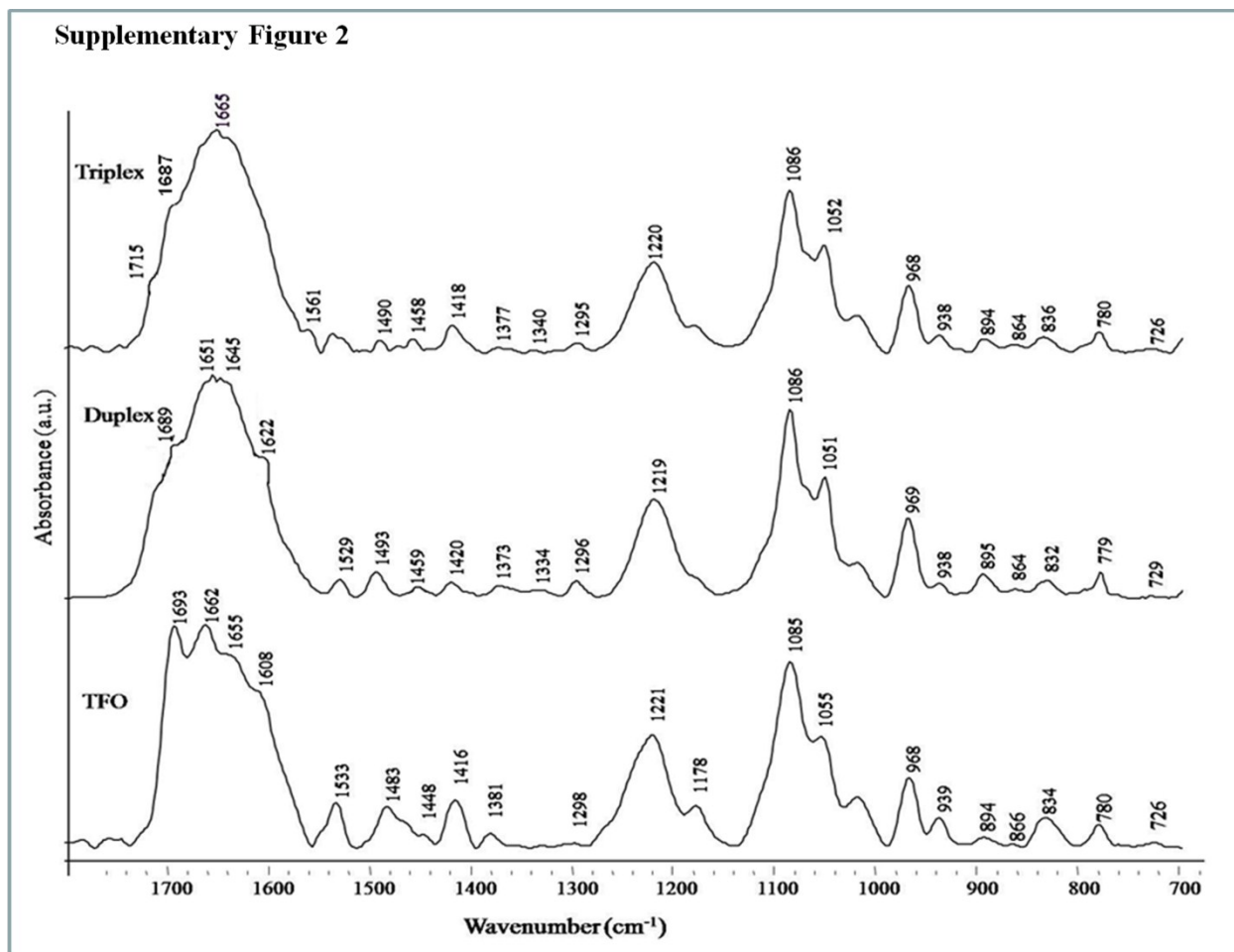


### Supplementary Figure 1

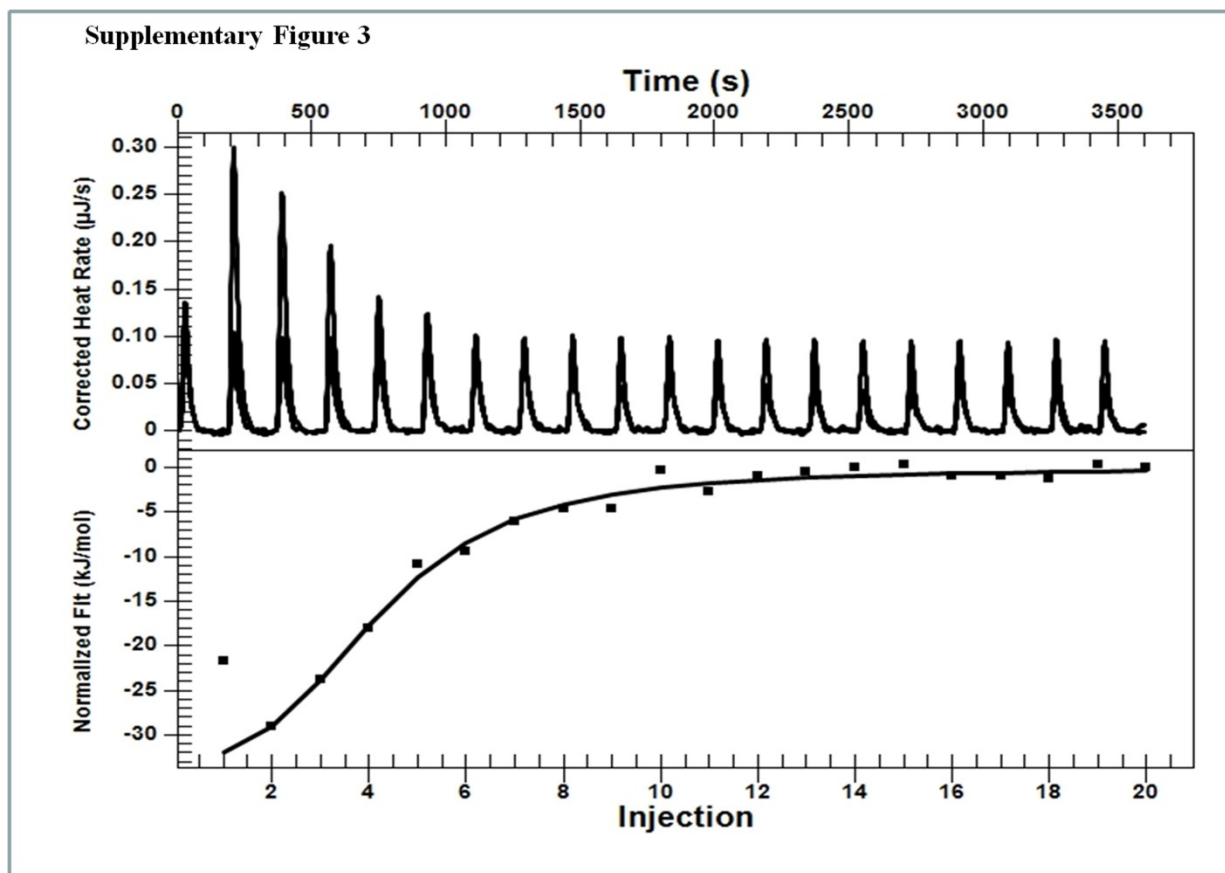


S.F 1: UV and CD melting profile of  $1.0\mu\text{M}$  25R\*R●Y from 20 to  $90^{\circ}\text{C}$  at 260nm. Represent melting of the 19R TFO from 25RYduplex while the second transition at higher value represents the dissociation of the duplex to the single strands.

Supplementary Figure 2



S.F 2: FTIR spectra of 25 RY duplex, TFO (19R) and 25R•R•Y triplex solution in 10mM Na-cacodylate buffer containing 120mM NaCl and 10 mM MgCl at pH 7.0 in the region of 1800 to 700 cm.



S.F 3: Representative ITC profile for 5 $\mu$ M 25RY interaction with 100 $\mu$ M TFO solution in 10mM Na-cacodylate buffer containing 120mM NaCl and 10 mM MgCl at pH 7.0 at 25 $^{\circ}$ C. The small spikes in the ITC profile (upper panel) represents heat of dilution corrected by injecting the ligands into 25RY duplex-free buffer under identical experimental conditions and was subtracted from corresponding heat of the ligand–duplex complexation.