

**Figure S1:** A comparison of the CD spectra of oligopeptoids with achiral *N*pm sidechains (**1**) and with  $\alpha$ -chiral, aromatic sidechains of *S* and *R* chirality (**2** and **6**, respectively). Sample concentration was  $\sim 60 \mu\text{M}$  in acetonitrile. Spectra were acquired at room temperature.

**Figure S2:** A comparison of CD spectra of *Nrpe* peptoid oligomer **6** as a function of concentration. Spectra were acquired at room temperature.

**Figure S3:** A comparison of the CD spectra of *Nrpe* peptoid oligomers **3**, **4**, and **5**. Peptoid concentration was  $\sim 60 \mu\text{M}$  in acetonitrile; spectra were acquired at room temperature.

**Figure S4:** The effect of temperature on the CD spectra of *Nrpe* peptoids including oligomers (a) **6** and (b) **18**. Spectra were acquired between  $5^\circ\text{C}$  and  $75^\circ\text{C}$  in  $10^\circ$  increments; results for only five temperatures are shown, for clarity. Sample concentration was  $\sim 60 \mu\text{M}$ .

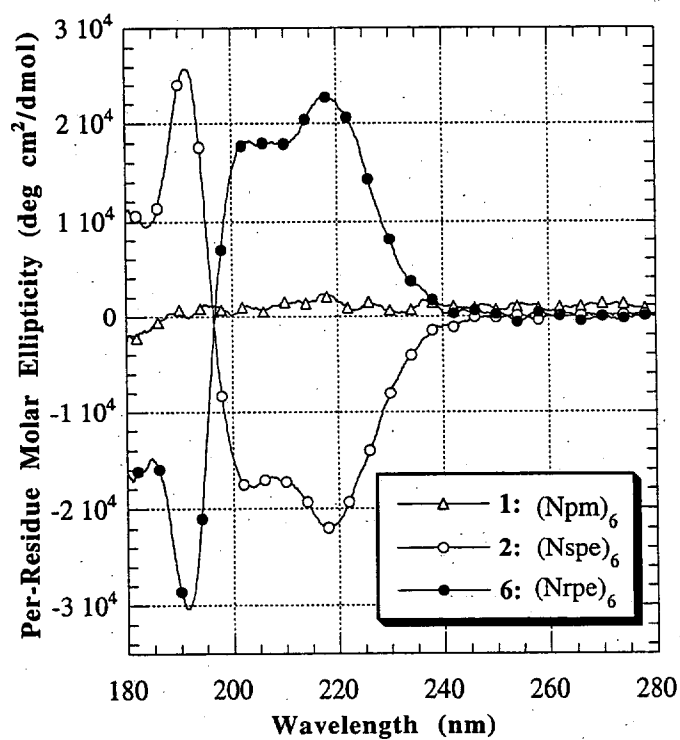


Figure S1.

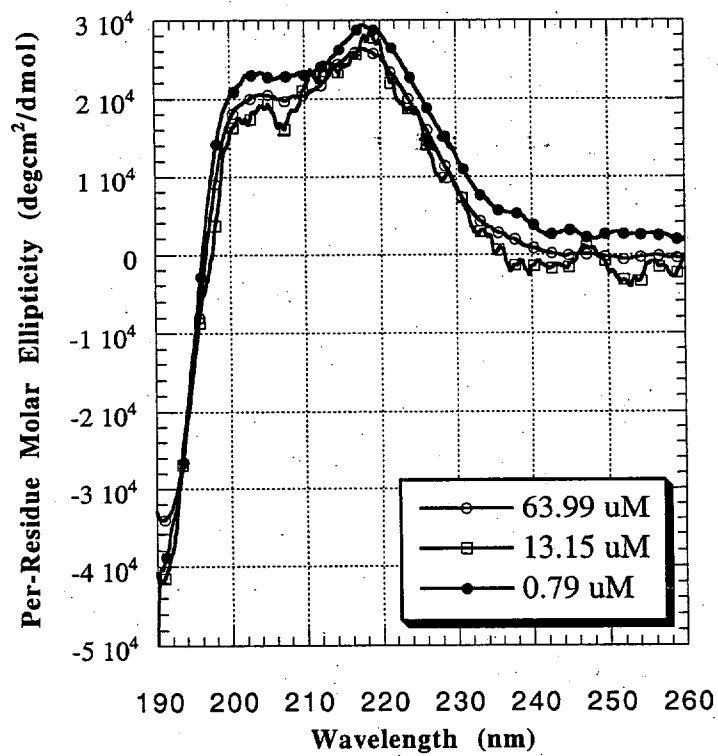


Figure S2.

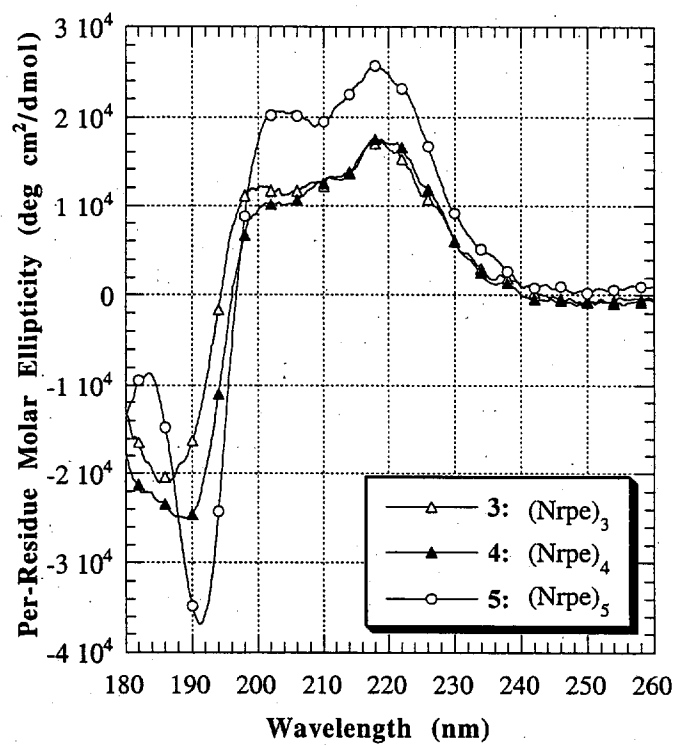


Figure S3.

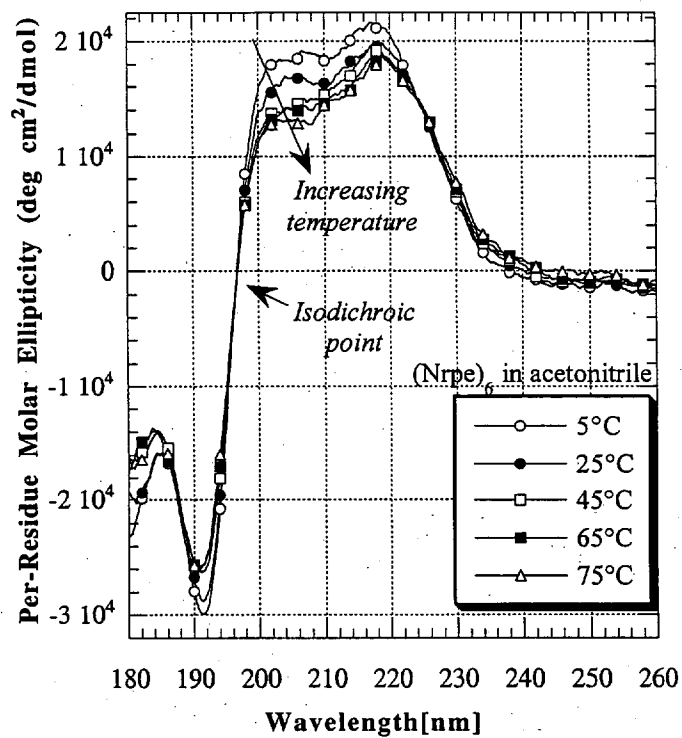


Figure S4(a).

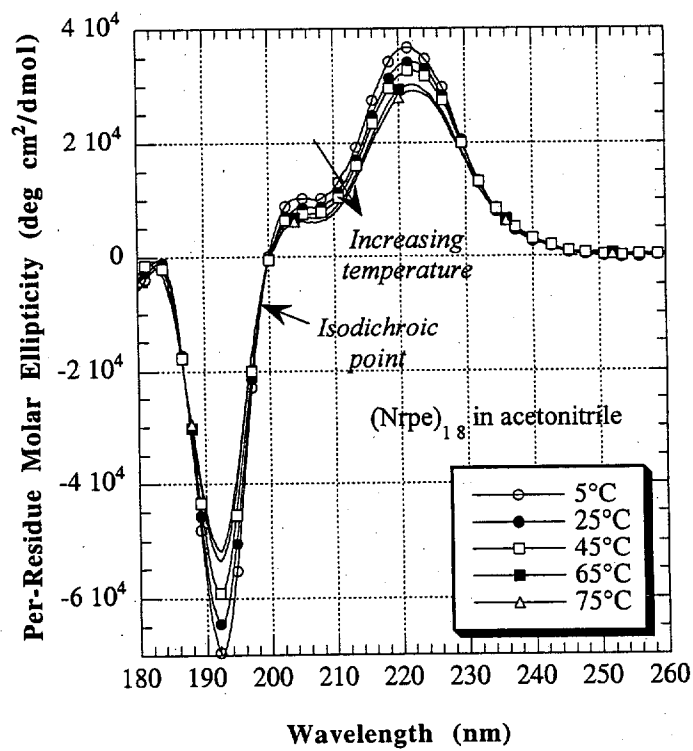


Figure S4(b).