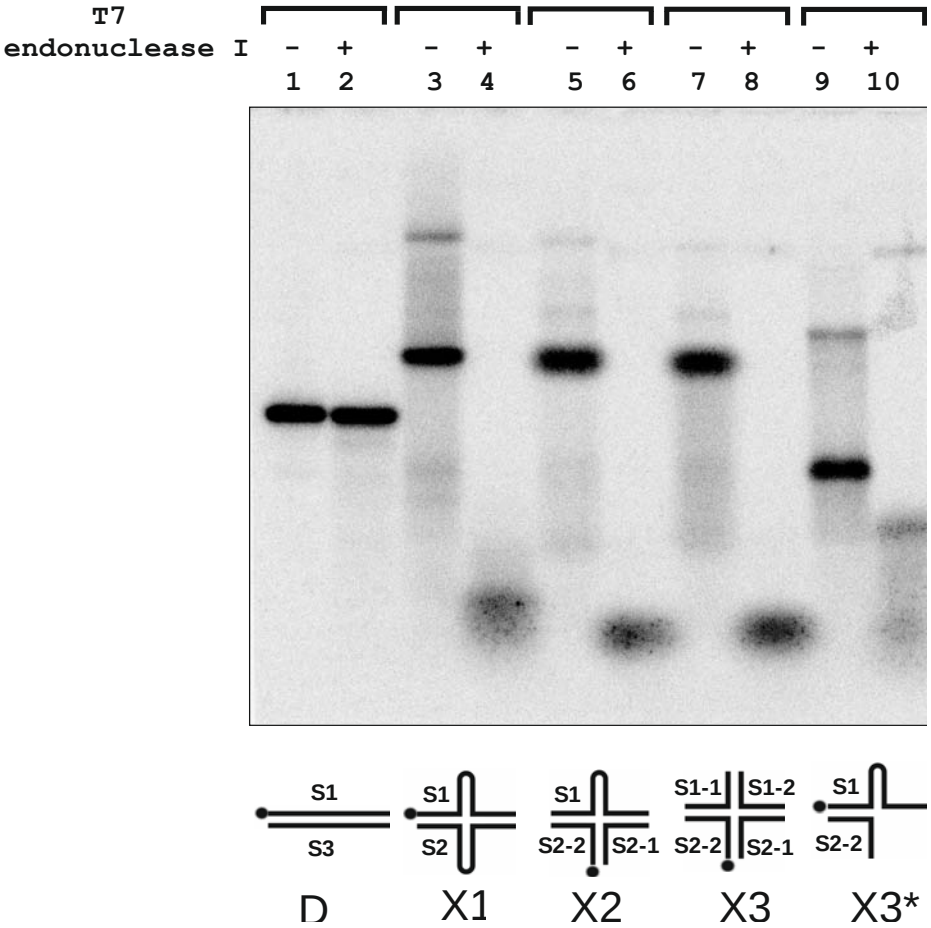
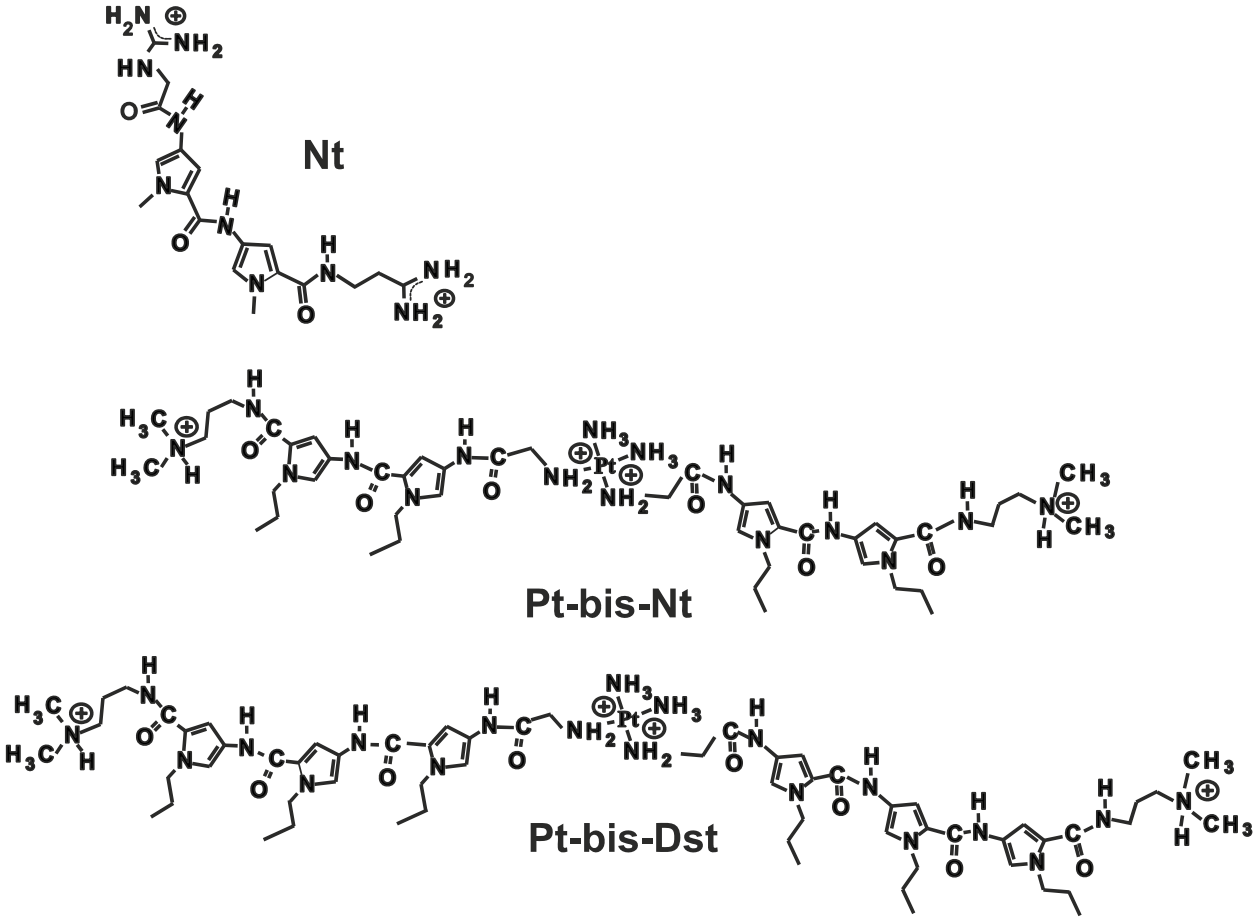
## Supplementary Material

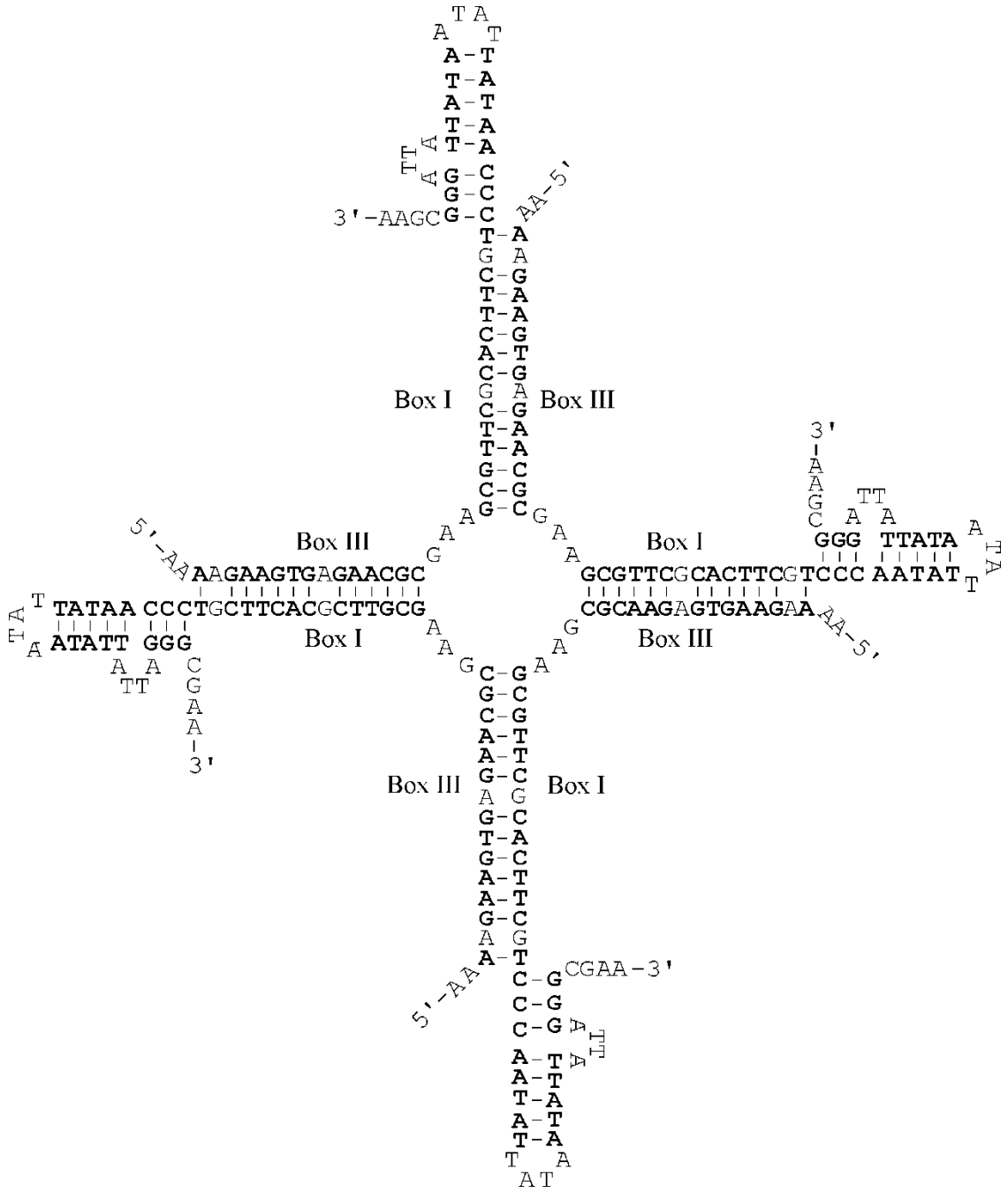
This supplement contains supplementary Figures S1 – S4.



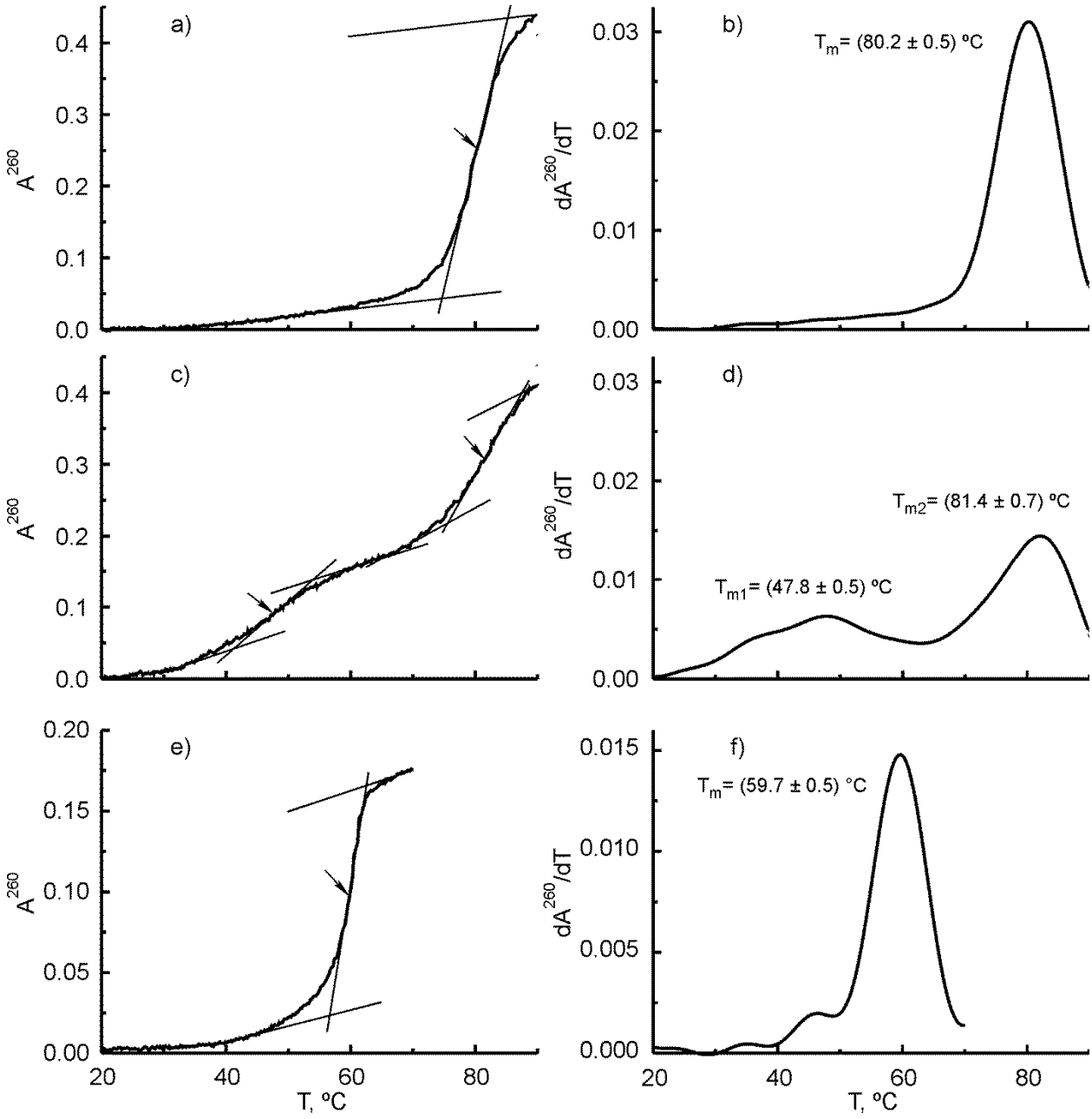

**Supplementary Figure S1.** Electrophoretic analysis of the cleavage products generated by T7 endonuclease I in branched DNA substrates. Digestion reactions were performed according to the manufacturer's instructions. Cleavage products were identified by electrophoresis in 7.5% polyacrylamide gel (29:1) and visualized by a phosphorimager (Perkin Elmer). Lanes 1, 3, 5, 7 and 9 – DNA substrates (25 nM) D, X1, X2, X3 and X3*, respectively, in the absence of T7 endonuclease I. Lanes 2, 4, 6, and 10 - products present in the reaction mixtures (20 μl) after incubation of a DNA substrate (25 nM) and T7 endonuclease I (0.5 unit) for 1 h at 37 °C.




**Supplementary Figure S2.** Chemical structures of netropsin (**Nt**) and bis-linked netropsin derivatives Pt-bis-netropsin (**Pt-bis-Nt**) and Pt-bis-distamycin (**Pt-bis-Dst**).




**Supplementary Figure S3.** The presumed model for structure of a 4-way DNA junction stabilized by complementary base pairing of the Box I and Box III inverted repeats belonging to the four V3 oligonucleotides. All the paired nucleotides are shown by bold symbols. Each arm also contains two mismatched GA pairs.




**Supplementary Figure S4.** Melting curves (panels a, c and e) and corresponding first derivative plots (panels b, d and f) for (V3+V4) duplex, V3 oligonucleotide and X3 junction, respectively. The melting curves were measured at 260 nm in 50 mM Tris HCl buffer (pH 8.0) containing 50 mM NaCl and 10 mM $MgCl_2$. Concentrations of the V3 oligonucleotide, (V3+V4) duplex and X3 junction were equal to $1.76\times10^{-6}$ and $8.8\times10^{-7}$ and $6.1\times10^{-7}$ M, respectively. $A^{260}$ is the absorbance measured at 260 nm and calculated per 1 cm cell. Arrows indicate the melting temperatures for individual transitions.