

*Supplementary Materials*

# Energy Dissipation Hypothesis Applied to Enhance the Affinity of Thrombin Binding Aptamer

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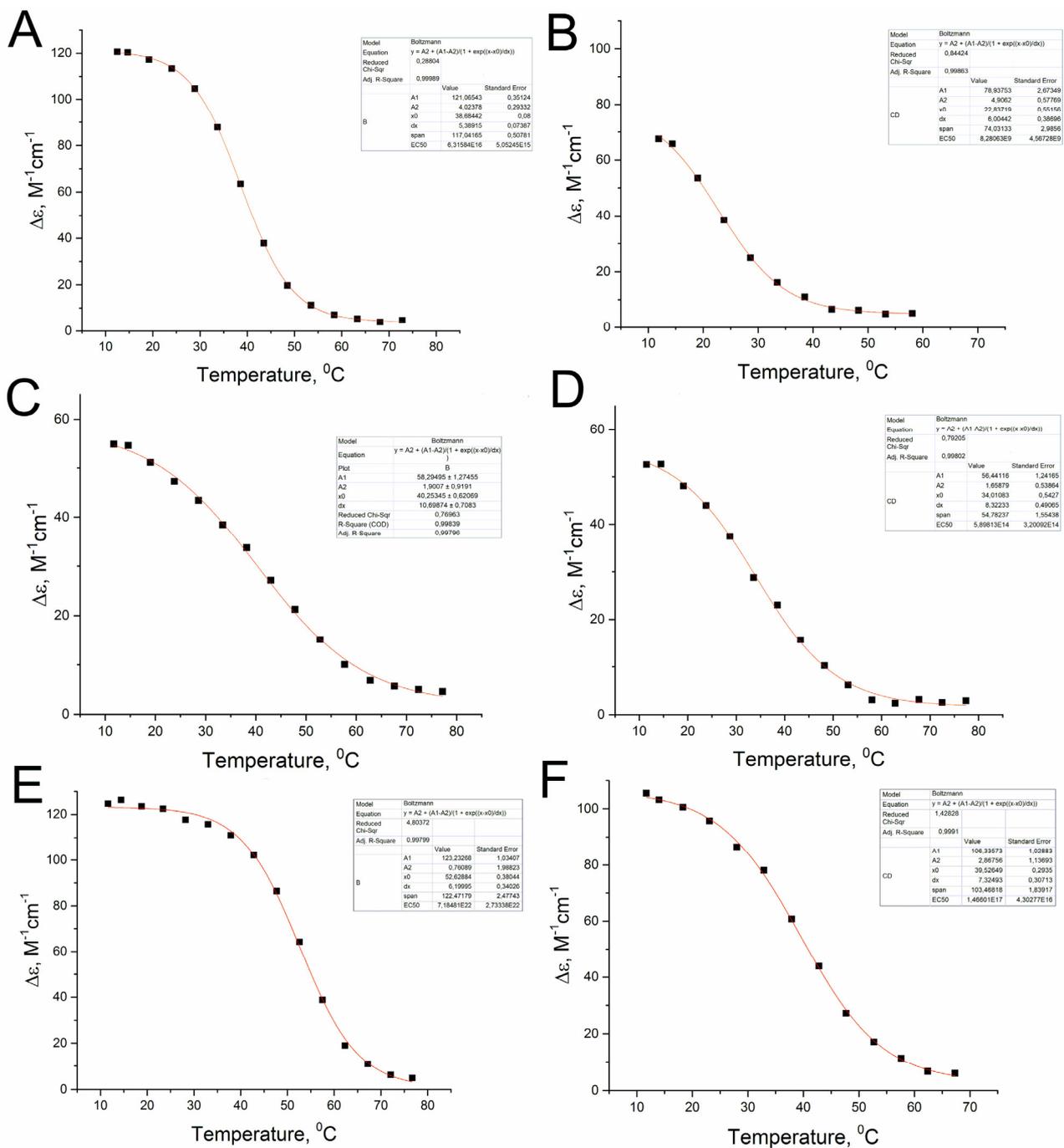
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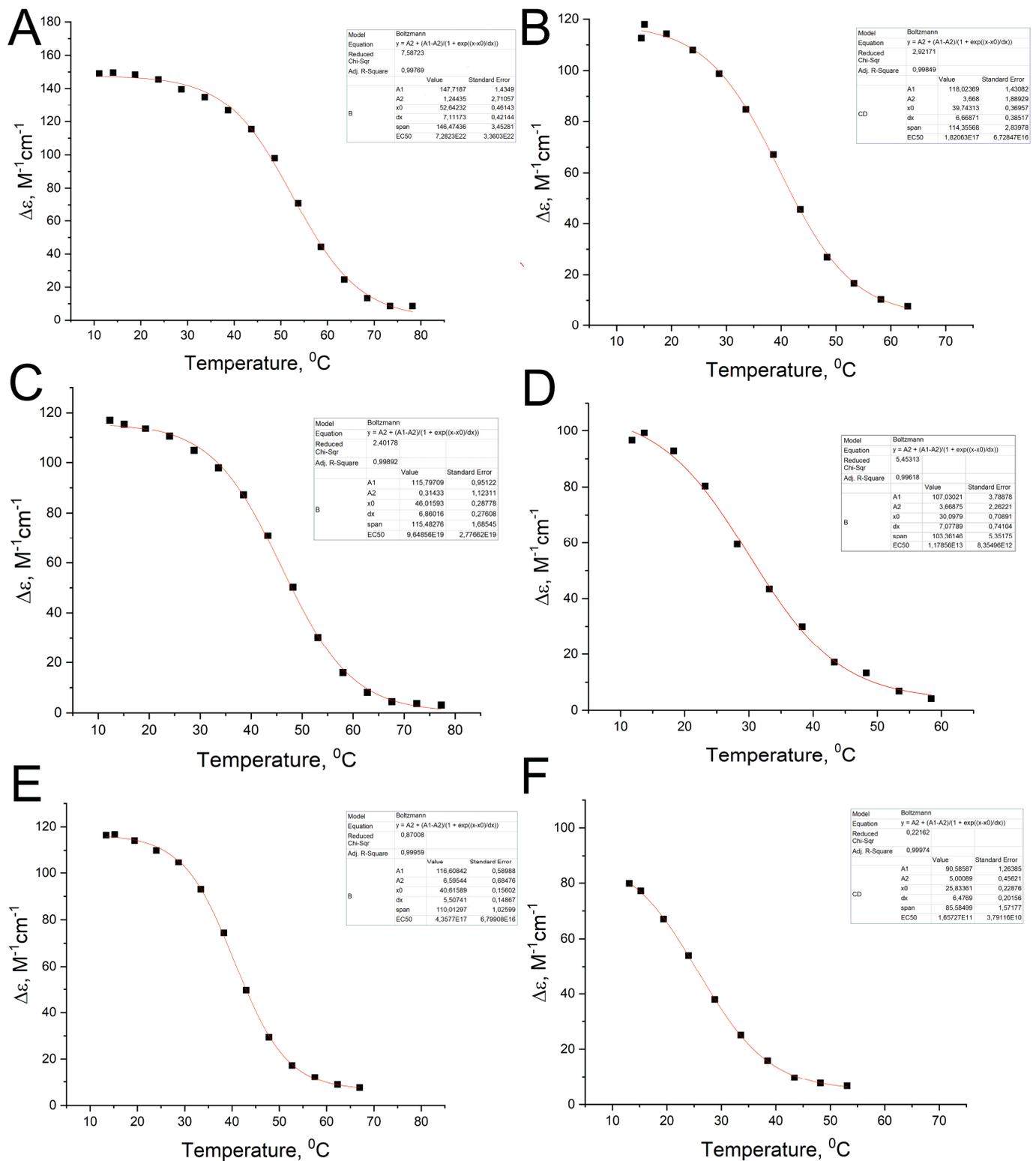
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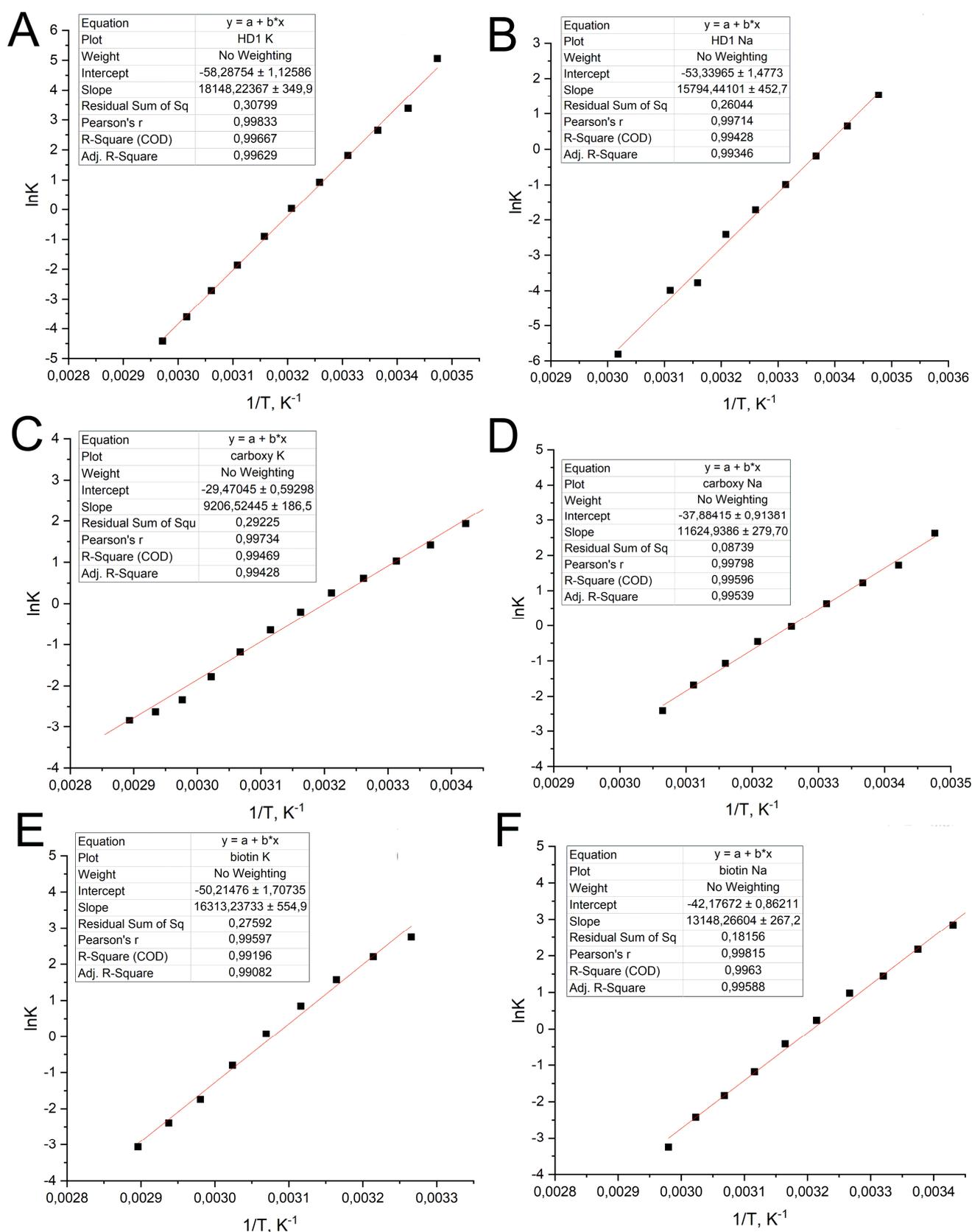
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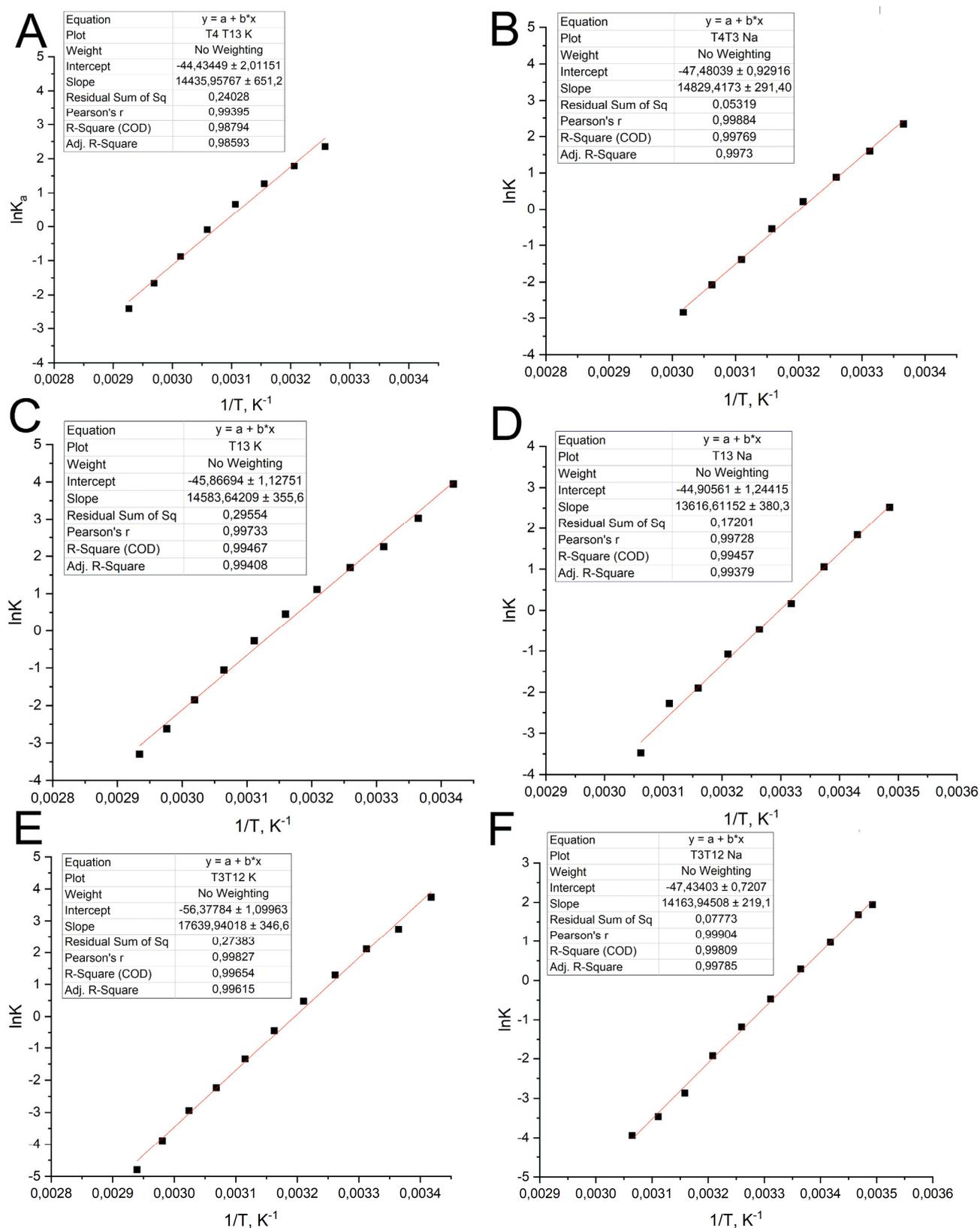
**Figure S1.** Melting curves of G-quadruplexes acquired from circular dichroism spectra at wavelength of 295 nm. A – K+-coordinated HD1; B – Na+-coordinated HD1; C – K+-coordinated carboxy-T4,T13-HD1; D - Na+-coordinated carboxy-T4,T13-HD1; E – K+-coordinated biotinylated-T4,T13-HD1; F – Na+-coordinated biotinylated-T4,T13-HD1.



**Figure S2.** Melting curves of G-quadruplexes acquired from circular dichroism spectra at wavelength of 295 nm. A – K<sup>+</sup>-coordinated amino-T4,T13-HD1; B – Na<sup>+</sup>-coordinated amino-T4,T13-HD1; C – K<sup>+</sup>-coordinated amino-T13-HD1; D - Na<sup>+</sup>-coordinated amino-T13-HD1; E – K<sup>+</sup>-coordinated amino-T3,T12-HD1; F – Na<sup>+</sup>-coordinated amino-T3,T12-HD1.



**Figure S3.** Linearization of melting curves in the coordinates  $\ln K(1/T)$  used for the calculations of thermodynamic parameters. A – K<sup>+</sup>-coordinated HD1; B – Na<sup>+</sup>-coordinated HD1; C – K<sup>+</sup>-coordinated carboxy-T4,T13-HD1; D – Na<sup>+</sup>-coordinated carboxy-T4,T13-HD1; E – K<sup>+</sup>-coordinated biotinylated-T4,T13-HD1; F – Na<sup>+</sup>-coordinated biotinylated-T4,T13-HD1.



**Figure S4.** Linearization of melting curves in the coordinates  $\ln K(1/T)$  used for the calculations of thermodynamic parameters. A – K+-coordinated amino-T4,T13-HD1; B – Na+-coordinated amino-T4,T13-HD1; C – K+-coordinated amino-T13-HD1; D - Na+-coordinated amino-T13-HD1; E – K+-coordinated amino-T3,T12-HD1; F – Na+-coordinated amino-T3,T12-HD1.