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Theoretical Study on Effects of Salt and Temperature on Denaturation Transition of Double-stranded DNA

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Abstract: We investigate the statistical mechanics properties of a nonlinear dynamics model of the denaturation of the DNA double-helix and study the effects of salt concentration and temperature on denaturation transition of DNA. The specific heat, entropy, and denaturation temperature of the system versus salt concentration are obtained. These results show that the denaturation of DNA not only depends on the temperature but also is influenced by the salt concentration in the solution of DNA, which are in agreement with experimental measurement.

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