

Thermodynamics of Folding

Thermodynamics of Folding: $\Delta G = \Delta H - T\Delta S$

- $\Delta G = 1.82$ kcal/mol at 54 °C
- $\Delta H = -42.40$ kcal/mol
- $\Delta S = -135.1$ cal/(K·mol)
- $T_m = 40.5$ °C assuming a 2 state model.
- linear DNA folding.
- Ionic conditions: $[Na^+] = 0.05$ M, $[Mg^{++}] = 0$ M.
- Standard errors are roughly $\pm 5\%$, $\pm 10\%$, $\pm 11\%$ and 2-4 °C for free energy, enthalpy, entropy and T_m , respectively.

Structure 2

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$\Delta G = 1.82$

Structural element	δG	Information
External loop	0.00	3 ss bases & 1 closing helices.
Stack	-1.35	External closing pair is c ¹ -G ²⁸
Stack	-0.70	External closing pair is g ² -C ²⁷
Stack	-0.70	External closing pair is t ³ -A ²⁶
Stack	-0.70	External closing pair is g ⁴ -C ²⁵
Helix	-3.45	5 base pairs.
Hairpin loop	5.27	Closing pair is t ⁵ -A ²⁴
