# Thermodynamics of Folding

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

- ΔG = 2.31 kcal/mol at 54 °C
- ΔH = -32.40 kcal/mol
- ΔS = -106 cal/(K·mol)
- $T_m$ = 32.2 °C assuming a 2 state model.
- linear DNA folding.
- Ionic conditions: [$Na^+$] = 0.05 M, [$Mg^{++}$] = 0 M.
- Standard errors are roughly ±5%, ±10%, ±11% and 2-4 °C for free energy, enthalpy, entropy and $T_m$, respectively.

Structure 3
24Jun24-07-38-03
ΔG = 2.31

| Structural element | δG | Information |
|---|---|---|
| External loop | -0.21 | 5 ss bases & 1 closing helices. |
| Stack | -1.35 | External closing pair is c [3]-G [29] |
| Stack | -0.70 | External closing pair is g [4]-C [28] |
| Stack | -0.70 | External closing pair is t [5]-A [27] |
| **Helix** | -2.75 | 4 base pairs. |
| Hairpin loop | 5.27 | Closing pair is g [6]-C [26] |