

# Thermodynamics of Folding

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

- $\Delta G = 2.63$  kcal/mol at 54 °C
- $\Delta H = -31.00$  kcal/mol
- $\Delta S = -102.7$  cal/(K·mol)
- $T_m = 28.4$  °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 10

0F\_CGTGT\_end

$\Delta G = 2.63$

Structural element	$\delta G$	Information
External loop	0.00	1 ss bases & 1 closing helices.
Stack	-0.70	External closing pair is c <sup>1</sup> -G <sup>28</sup>
Stack	-0.70	External closing pair is a <sup>2</sup> -T <sup>27</sup>
Stack	-1.35	External closing pair is c <sup>3</sup> -G <sup>26</sup>
<b>Helix</b>	-2.75	4 base pairs.
Hairpin loop	5.38	Closing pair is g <sup>4</sup> -C <sup>25</sup>

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