Supplementary data for [Phase Transition of a Single Protein-like Copolymer Chain]

Zilu Wang[1,2], Long Wang[1,2] and Xuehao He*[2]

[1] *Department of Polymer Science and Engineering, School of Chemical Engineering and Technology, Tianjin University, 300072 Tianjin, China;*
[2] *Department of Chemistry, School of Science, Tianjin University, 300072 Tianjin, China.*

S1. Comparison of the logrithm of the density of state (DOS) function lng(*E*) for PLCs with different sizes.

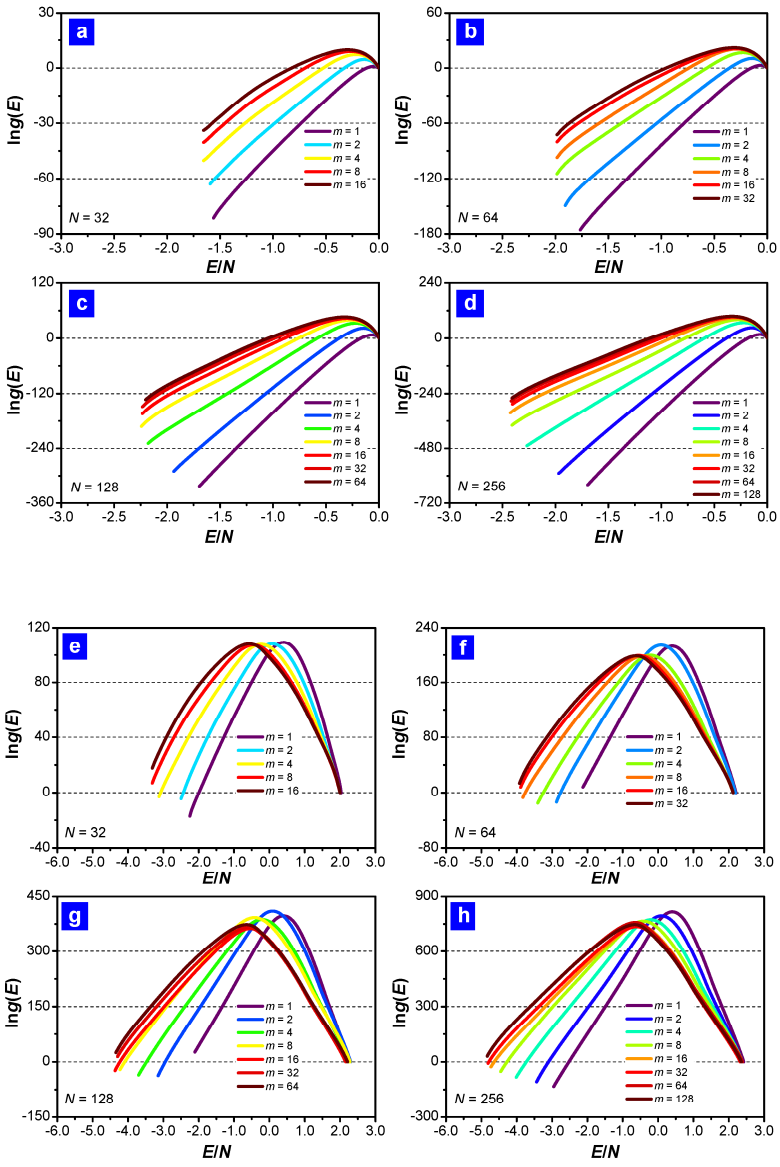

Fig. S1 Logarithm of the DOS functions lng(*E*) as a function of the average energy *E*/*N* for chains of length *N* = 32, 64,128 and 256 with different block length *m*. (a ~ d) HP-PLC; (e ~ h) AB-PLC.

S2. Comparison of the average specific heat function $C_V(T)/N$ for the PLCs with different sizes.

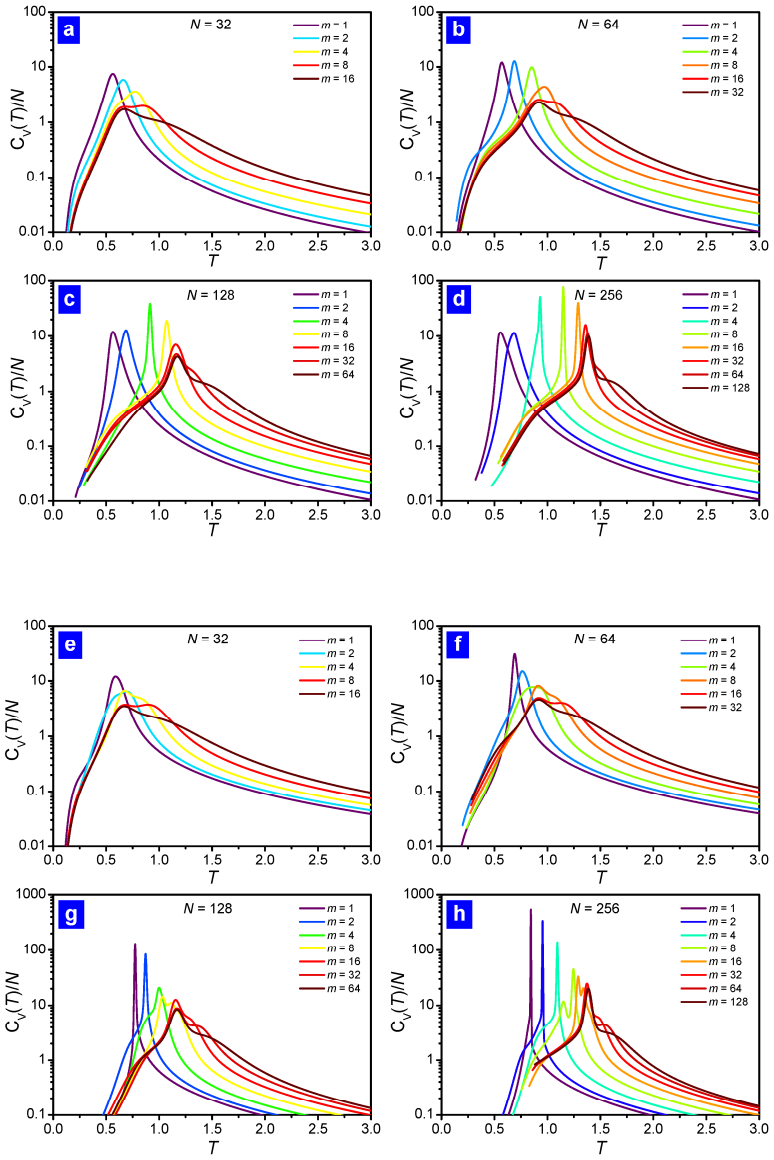

Fig. S2 Average specific heat function $C_V(T)/N$ as a function of the reduced temperature T for chains of length $N = 32$, 64, 128 and 256 with different block length m. (a ~ d) HP-PLC; (e ~ h) AB-PLC.

S3. Comparison of the potential energy surface (PES) for the PLCs with different block lengths.

HP:

AB:

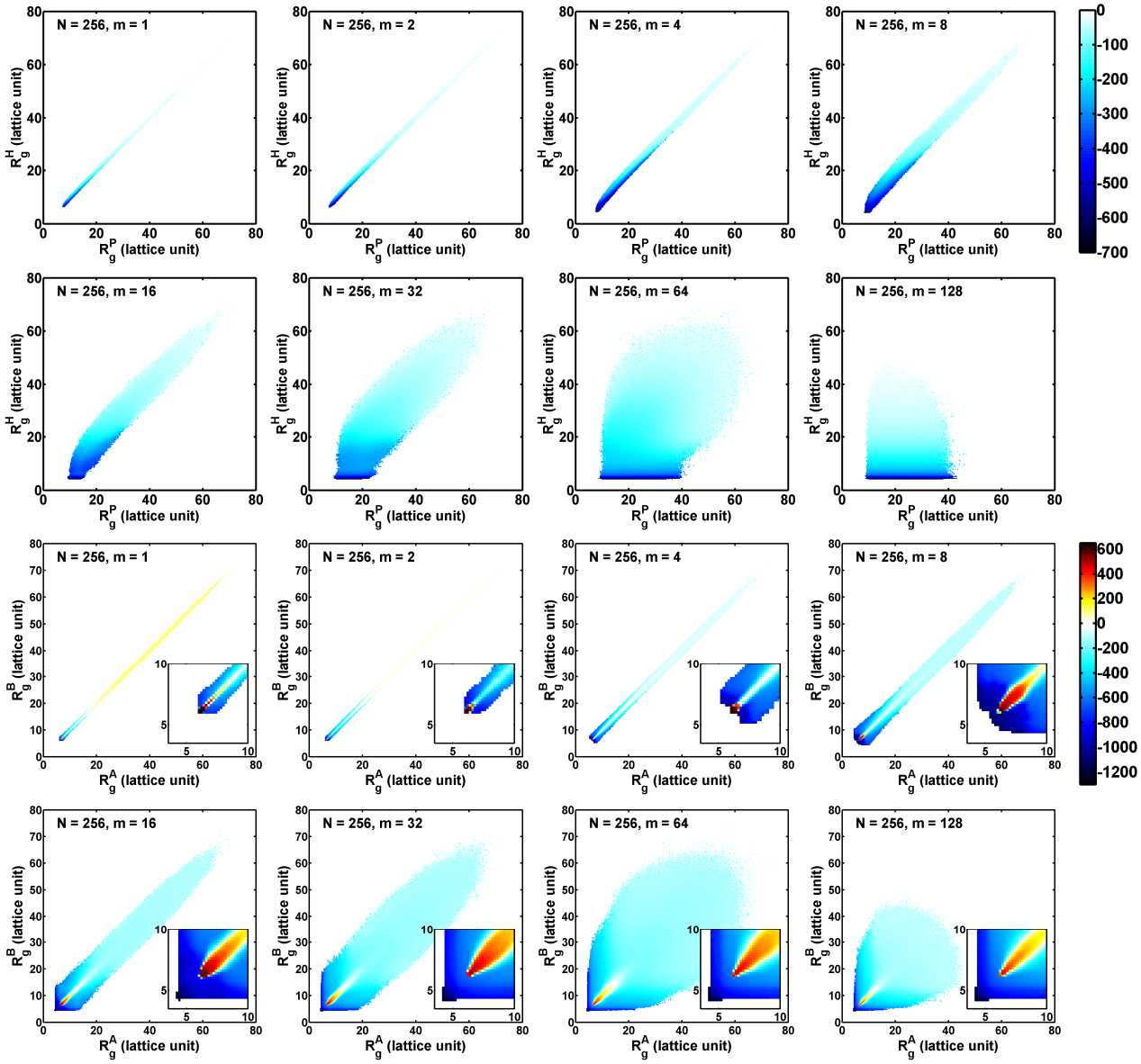

Fig. S3 Potential energy surface spanned by the radius of gyration of the two components for HP and AB PLCs respectively (N = 256). The energy level is mapped to the colour scale for a distinction. An inset chart in AB-PES magnifies the low R_g region.