

Table S3: Maxima and confidence intervals of d_{NC} taken from $p(d_{\text{NC}}|D, K)$ of the single-state refinement of LBP. All interdomain distances d_{NC} in nanometer. Refining a single state against SAXS curves that, in truth, represent a heterogeneous ensemble of open/closed states, yields posterior distributions that peak at the “mean” interdomain distance $\langle d_{\text{NC}} \rangle = w_{\text{open}} d_{\text{NC}}^{\text{open}} + (1 - w_{\text{open}}) d_{\text{NC}}^{\text{closed}}$, where $d_{\text{NC}}^{\text{open}}$ and $d_{\text{NC}}^{\text{closed}}$ denote the mean interdomain distances of the open and closed states, in free simulations, respectively. The respective posteriors are shown in Fig. S1B.

True w_{open} (%)	mean $\langle d_{\text{NC}} \rangle$	maximum	65% interval		95% interval	
0	3	3.01	2.96	3.06	2.93	3.12
25	3.0625	3.12	3.07	3.16	3.03	3.19
50	3.125	3.14	3.10	3.20	3.06	3.24
75	3.1875	3.20	3.16	3.24	3.11	3.28
100	3.25	3.23	3.20	3.28	3.16	3.34