

Table S2: Maxima and confidence intervals of d_{NC} , taken from $p(d_{\text{NC}}|D, K)$ of the two-state ensemble refinement of LBP. All interdomain distances d_{NC} in nanometer. During two-state refinement, in simulations with non-zero w_{open} , the posterior of the interdomain distance $p(d_{\text{NC}}|D, K)$ of the open state peaks at the physically correct $d_{\text{NC}} \approx 3.25$ nm. The respective posteriors are shown in Fig. S1A.

| True w_{open} (%) | True mean d_{NC} | maximum | 65% interval | | 95% interval | |
|----------------------------|---------------------------|---------|--------------|------|--------------|------|
| 0 | 3.25 | 3.38 | 3.21 | 3.44 | 3.01 | 3.48 |
| 25 | 3.25 | 3.23 | 3.15 | 3.33 | 3.06 | 3.42 |
| 50 | 3.25 | 3.25 | 3.17 | 3.33 | 3.12 | 3.40 |
| 75 | 3.25 | 3.25 | 3.19 | 3.33 | 3.15 | 3.40 |
| 100 | 3.25 | 3.27 | 3.21 | 3.35 | 3.15 | 3.42 |