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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
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Sample size estimation does not apply to our methods in silico or in vitro methods used (MD, NMR). Triplicates were used in MST and DSF, according to standard procedures.

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* You should report how often each experiment was performed
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* The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
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Figure 5 B,C: Triplicates were used in MST and DSF, according to standard procedures. We used ‘technical replicates’ with independent pipetting from stock solutions and different measurement volumes.

The number of simulations and the length of each are provided in Table S1. The simulation lengths and two replicas of each construct are shown to be adequate for our analysis in Figure 3.

**Statistical reporting**

* Statistical analysis methods should be described and justified
* Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
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Figure 5 B,C: MST and DSF were performed with N=3 ± SD.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
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* Where provided, these should be in the most useful format, and they can be uploaded as “Source data” files linked to a main figure or table
* Include model definition files including the full list of parameters used
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Please indicate the figures or tables for which source data files have been provided:

NMR chemical shift assignments for the H-NS Cterminal domain in its apo and Nterm-bound state are deposited at the BMRB with the IDs 50239 and 50240, respectively.