SUPPLEMENTARY MATERIALS

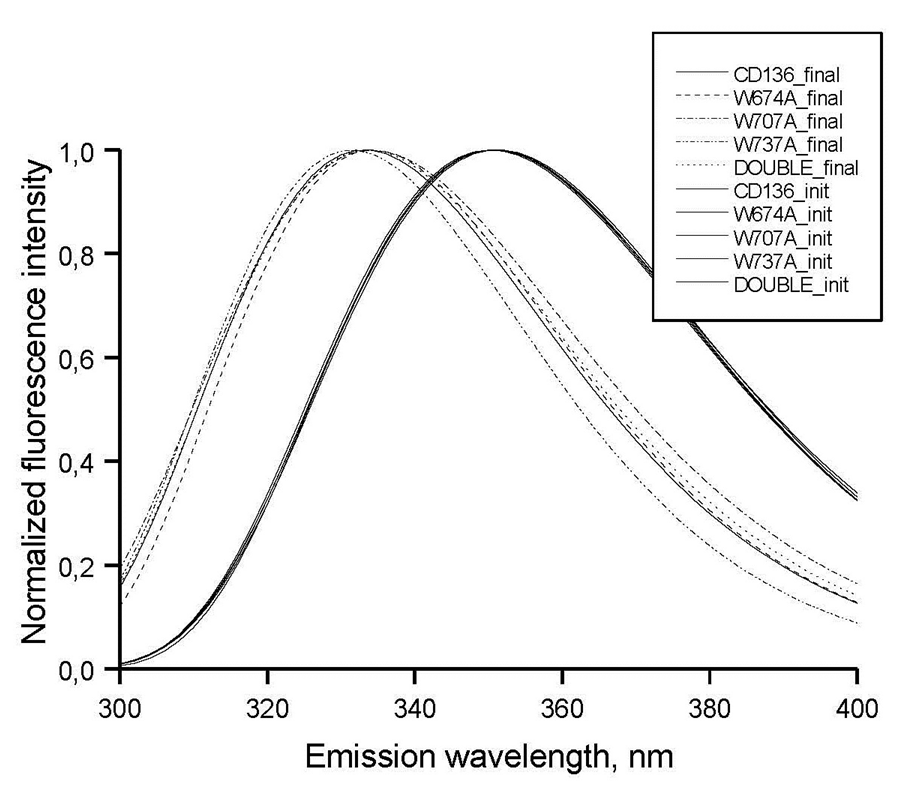
Intrinsically disordered caldesmon binds calmodulin via the “buttons on a string” mechanism

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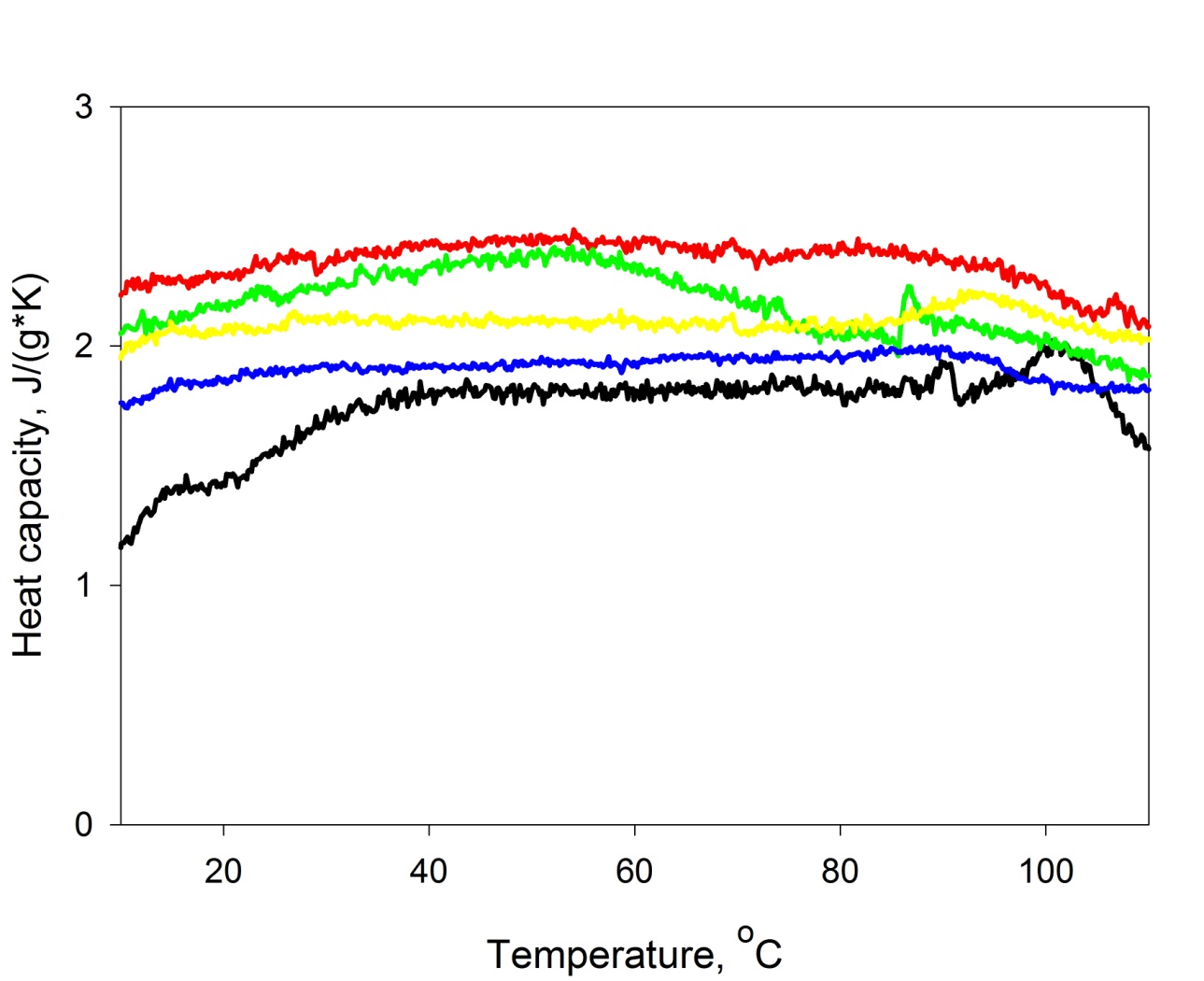
**Figure S1**. Normalized intrinsic tryptophan fluorescence spectra of wild type CaD136 and its mutants in the free and CaM-bound states. Proteins are characterized by almost indistinguishable fluorescence in their unbound forms, whereas binding to CaM differently affects intrinsic fluorescence spectra.



**Figure S2.** Difference spectra determined by the subtraction from the far-UV CD spectrum of the wild type CaD136 the far-UV CD spectrum of: W674A (**2**), W707A (**3**), W737A (**4**) and W674A/W707A (**5**). All measurements were carried out at a protein concentration of 0.6-0.8 mg/ml, cell pathlength 0.1 mm, 15oC.



**Figure S3.** Difference spectra determined by the subtraction from the near-UV CD spectrum of the CaD136 the near-UV CD spectrum of: W674A (**2**), W707A (**3**), W737A (**4**) and W674A/W707A (**5**). All measurements were carried out at a protein concentration of 0.6-0.8 mg/ml, cell pathlength 10 mm, 15oC.



**Figure S4.** Calorimetric scans for wild type CaD136 and its mutants in solution. Experiments were performed in 50 mM H3BO3 buffer, pH 8.0. Protein concentrations were 0.97 mg/ml, 1.38 mg/ml, 1.21 mg/ml, 1.56 mg/ml and 1.96 mg/ml for the wild type (black curve), W674A (red curve), W707A (green curve), W737A (yellow curve), and W674A/W707A (blue curve), respectively.