Electronic Supplementary Material (ESI) for RSC Advances.

Regulation centrin self-assembly investigated by fluorescence resonance light scattering

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Fig. S1 A: Cross-linking analysis of EoCenp. Lane 1: EoCenp; Lane 2: EoCenp + 0.1% glutaraldehyde. B: The proportions of EoCenp monomer and aggregations compared with the total protein in figure 2.4. a: EoCenp monomer; b: EoCenp aggregations.

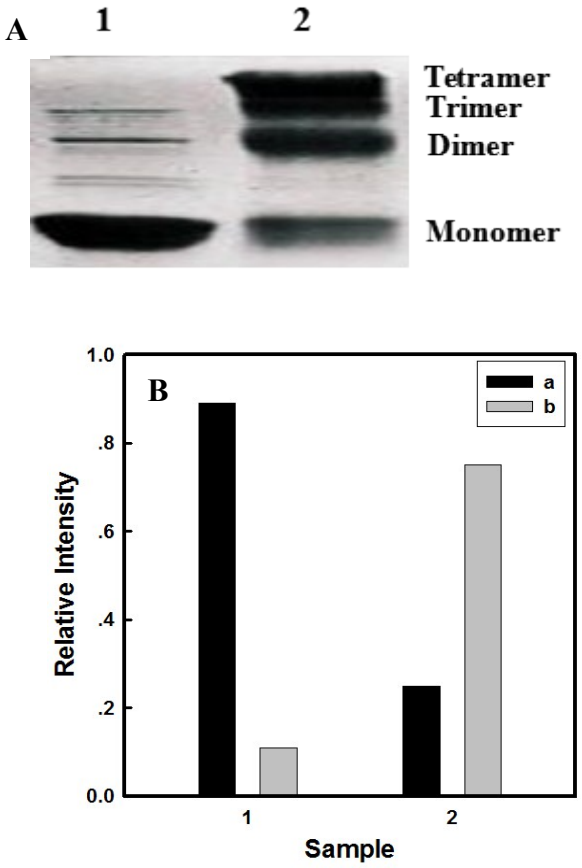

Fig. S2. Titration curves for different concentrations of EoCenp (A) and EoCen (B) with Tb^{3+} by measuring the RLS intensity at 370 nm in 10 mM Hepes, pH 7.4, 25 ℃. The concentration of protein is 1.0×10^{-6} (a), 5.0×10^{-6} (b), 8.0×10^{-6} M (c), respectively. The width of excitation and emission was 2.5 nm.

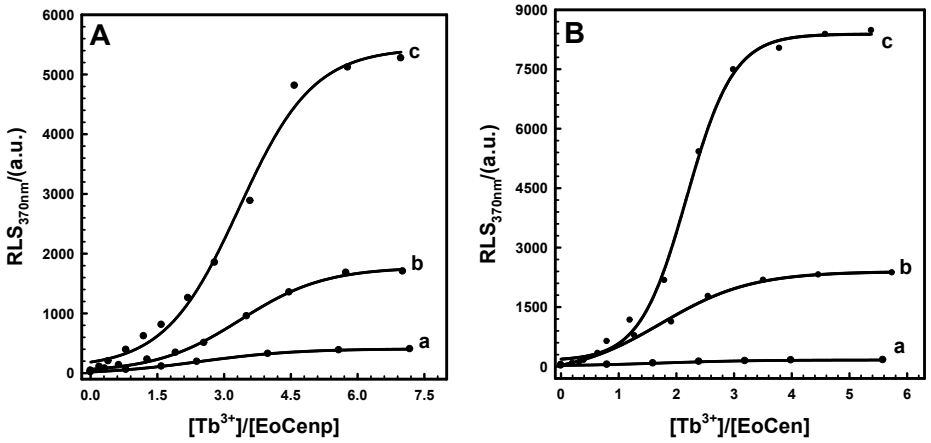

Fig. S3 The effect of monovalent cations on the aggregation of EoCen (a) and EoCenp (b) in 10 mM Hepes, pH 7.4, 25 ℃. A: KCl; B: NaCl; C: LiCl. The concentrations of protein were 2.5 μM.

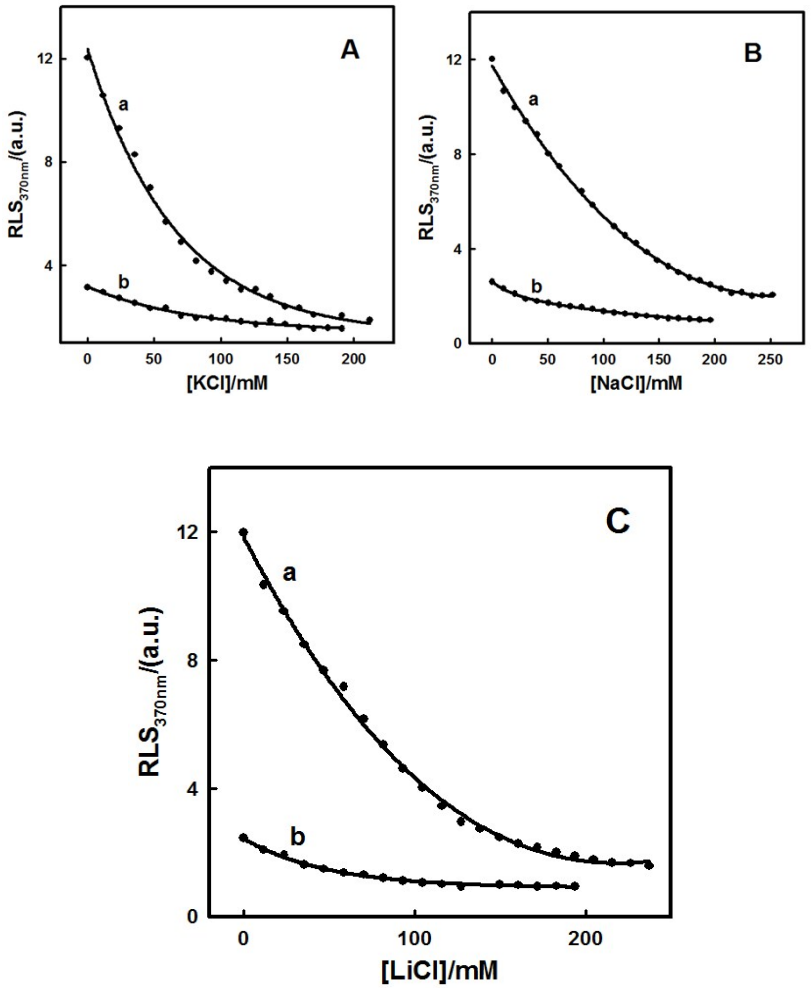

Fig. S4 RLS titration curves of EoCen (red) and EoCenp (black) with the addition of Tb^{3+} in the presence of different concentrations of NaCl. The concentration of NaCl was 150 mM.

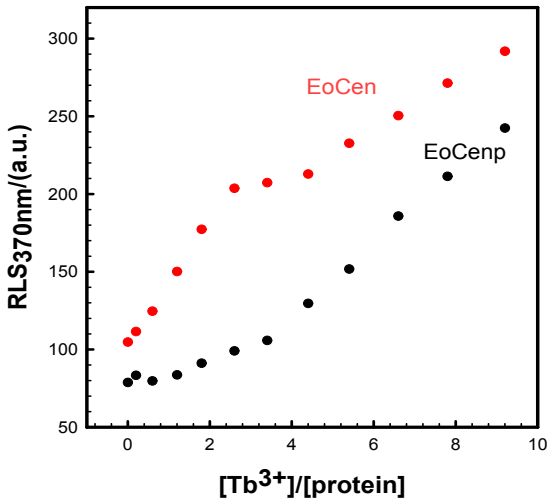

Table S1 Fluorescence lifetime values of EoCen in various states.

	τ_1 (%)	τ_2 (%)	τ_3 (%)
apoEoCen	1.40±0.03 (45.67%)	3.09±0.03 (54.33%)	
TbEoCen	1.33±0.03 (47.51%)	3.02±0.03 (52.49%)	
Tb_2EoCen	0.96±0.02 (46.22%)	2.85±0.02 (57.39%)	
apoEoCenp	1.28±0.02 (58.65%)	3.42±0.03 (41.35%)	
TbEoCenp	0.44±0.05 (31.94%)	1.76±0.09 (45.78%)	3.82±0.15 (22.28%)
Tb_2TbEoCenp	0.38±0.03 (50.66%)	1.76±0.08 (34.88%)	3.97±0.17 (14.45%)
apoC-EoCen	1.86±0.05 (46.77%)	3.52±0.06 (53.23%)	
TbC-EoCen	1.69±0.05 (40.94%)	3.51±0.04 (59.06%)	
Tb_2TbC-EoCen	0.33±0.02 (46.22%)	2.07±0.13 (31.70%)	3.92±0.18 (22.09%)
apoC-EoCenp	1.74±0.04 (51.50%)	3.69±0.05 (48.50%)	
TbC-EoCenp	0.31±0.05 (40.94%)	1.73±0.09 (38.69%)	3.63±0.09 (35.33%)
Tb_2TbC-EoCenp	0.50±0.01 (55.90%)	3.05±0.02 (44.10%)	
apo aggregated EoCen	0.97±0.02 (65.49%)	2.41±0.04 (34.51%)	
aggregated Tb_2-EoCen	0.69±0.01 (72.83%)	2.21±0.03 (27.17%)	
apo aggregated C-EoCen	0.98±0.03 (47.44%)	2.48±0.03 (52.56%)	
aggregated Tb-C-EoCen	0.67±0.02 (59.90%)	2.20±0.02 (40.10%)	
aggregated Tb_2-C-EoCen	0.26±0.01 (92.98%)	1.86±0.05 (7.02%)	

Table S2. Fluorescent lifetime values of Tyr in solvents with different polarity.

solvents	τ
Tyr+H_2O (pH=7.0)	3.41±0.01
Tyr+DMSO	2.0±0.01
Tyr+DMF	0.67±0.00
Tyr+pyridine	0.27±0.00

Table S3. The first order reaction rate constants of Tb^{3+}-induced self-assembly of EoCenp and EoCen at different concentrations of Tb^{3+}.

[Tb^{3+}]/[protein]	0:1	1:1	2:1	4:1
k (EoCenp) (s^{-1})	0	1.55×10^{-4}	1.86×10^{-3}	2.18×10^{-3}
k (EoCen) (s^{-1})	0	2.31×10^{-3}	5.58×10^{-3}	3.0×10^{-2}

Table S4. The reaction rate constants of EoCenp and EoCen self-assembly induced by Tb^{3+} with different concentrations of KCl.

KCl/(mM)	20	40	60	80	100	120	150
k (EoCenp) (s^{-1})	0.064	0.067	0.048	0.040	0.043	0.046	0.029
	0.004	0.004	0.002	0.002	0.003	0.003	0.001
k (EoCen) (s^{-1})	0.070	0.052	0.039	0.015	3.15×10^{-3}	2.015×10^{-3}	3.62×10^{-7}
	0.005	0.004	0.003	0.001	-	-	-