Mechanism of biosurfactant adsorption to oil/water interfaces from millisecond scale tensiometry measurements

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Table S1: Average diameter of three surfactants measured by DLS in Fig. S1

concentration(mM)	diameter (nm)		
	SFT	5-SCBS	8-SCBS
0.1	4.41	78.24	105.93
0.25	4.43	79.97	101.72
0.5	4.50	70.63	101.33
Average	4.45	76.28	102.99

Table S2: Parameter values abstracted from model with higher aggregation number n

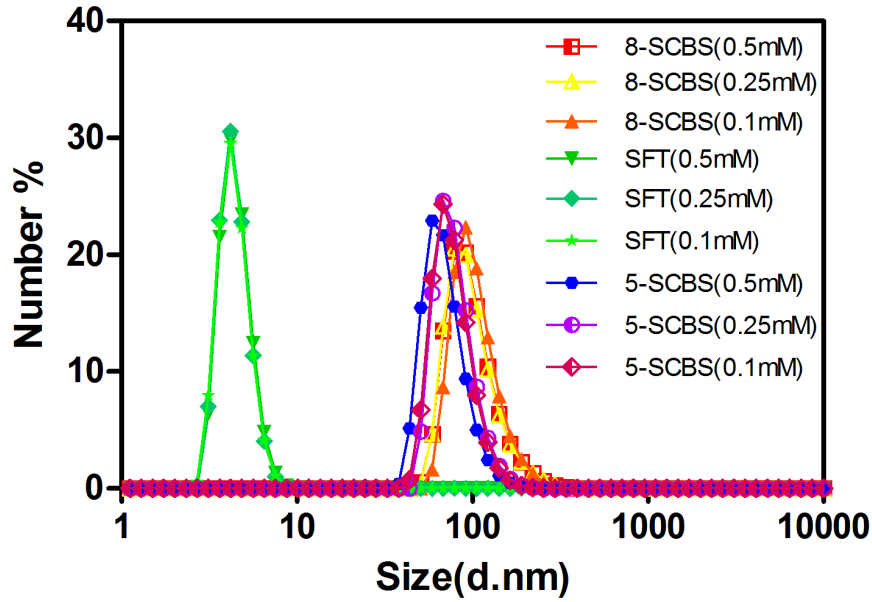| surfactants	lgk_a	lgk_b	lgk_M	lgk_{mM}	n
5-SCBS	5.46	-1.45	96	6	5000
8-SCBS	5.62	-2.74	96	0.6	5000
5-SCBS	5.45	-1.2	96	6	500
8-SCBS	5.61	-2.7	96	0.6	500

Figure S1: Size distributions of surfactin, 5-SCBS and 8-SCBS at the different concentrations used in our experiments.
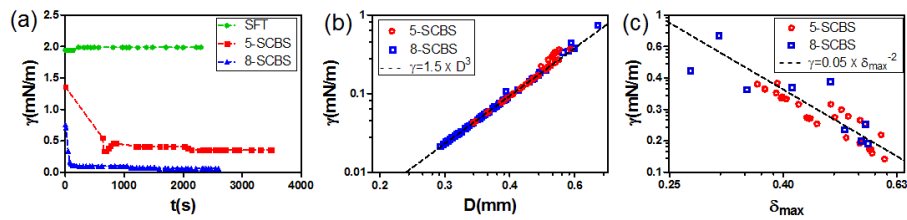

Figure S2: (a) Interfacial tension measured by traditional spinning drop ultra-low interfacial tensiometer (4500 rpm, 45 °C). (b)The interfacial tension shows a universal third power dependence on the width of the spinning droplet regardless of the surfactant type or concentration and (c)an inverse square dependence on the maximum deformation of the droplet.
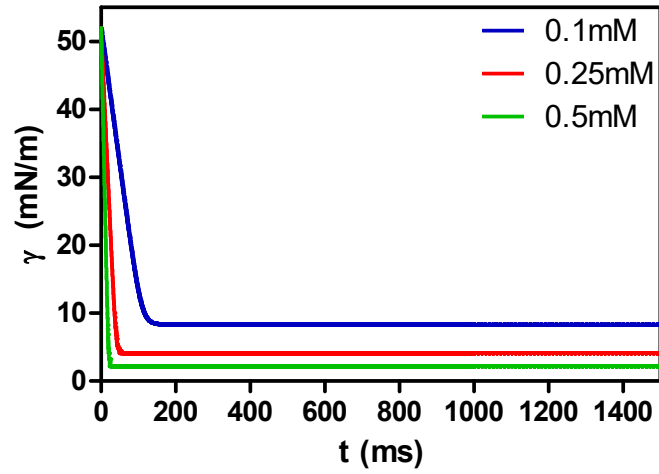
Figure S3: fit with concentration time dependant beginning at $c_0 = c_{tot} - c_{\mathrm{CMC}}$ for 3 different concentration
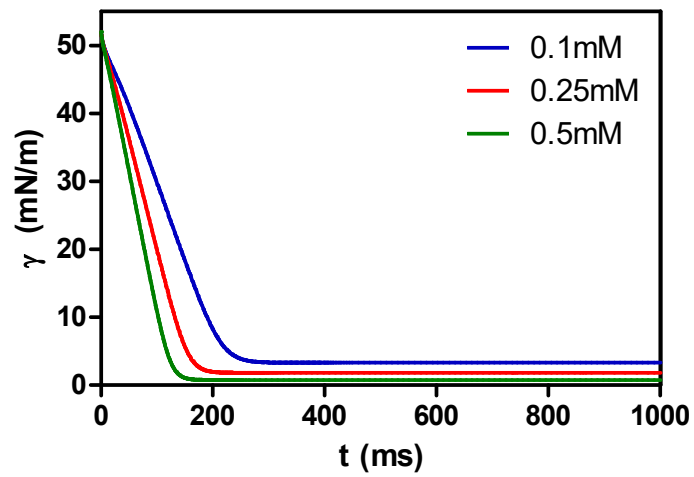

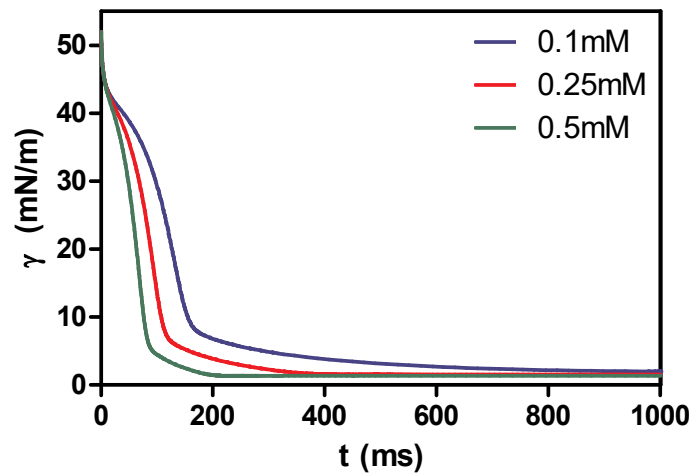Figure S4: The predicted curves and measured data for small micelles (n=3)

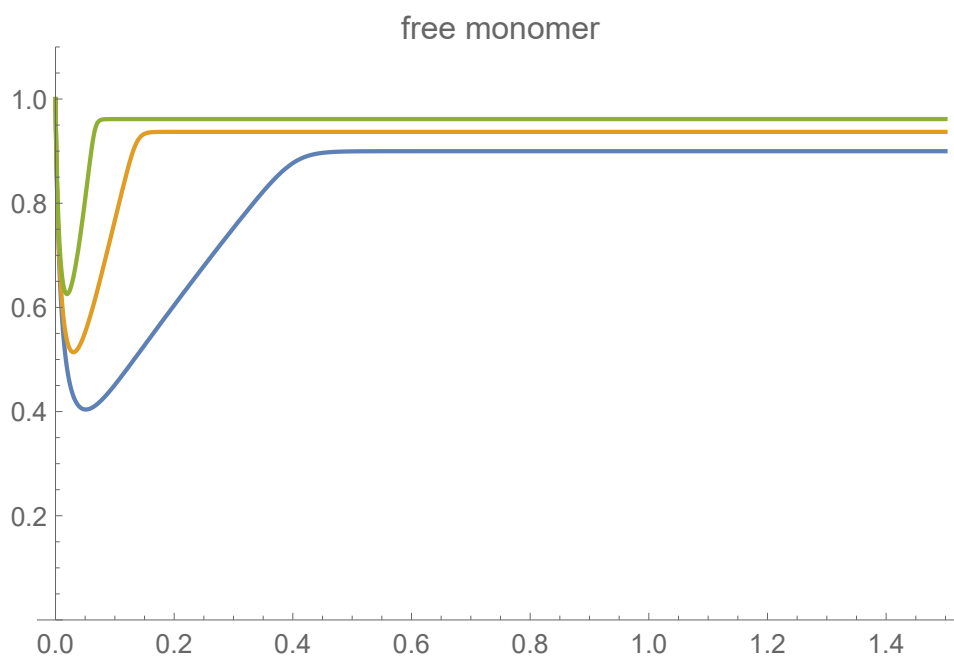Figure S5: The predicted curves and measured date for big micelles (n=20)

Figure S6: Predicted free monomer concentration normalized to CMC as function of time. Total concentration: green, 0.5 mM; orange, 0.25 mM; blue, 0.1 mM
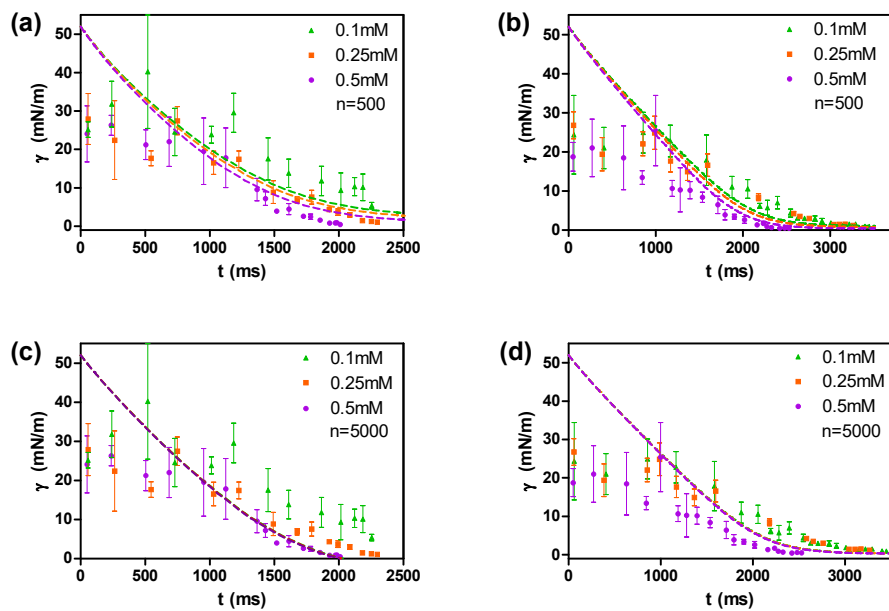
Figure S7: Fitting with different aggregation number n on the derived interfacial tension data of 5-SCBS and 8-SCBS. (a) 5-SCBS, n=500; (b) 8-SCBS, n=500; (c) 5-SCBS, n=5000; (d) 8-SCBS, n=5000.