Supporting Information for:

CHOBIMALT: A Cholesterol-Based Detergent[†]

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2 Supporting Figures

2 Supporting Tables

Supporting References

Supporting Figure 1: Data used for measurement of translational diffusion coefficients for detergent "standards" and for CHOBIMALT. In the lower right panel the known aggregate molecular weights for the micelles formed by the standard detergents (see Supporting Table I) are plotted against the log of the diffusion coefficients. From this standard curve and the diffusion coefficient measured for 1% CHOBIMALT ($3.3*10^{-11}m^2s^{-1}$) it was estimated that the aggregate molecular weight for CHOBIMALT micelles is 213 kDa.

Supporting Figure 2: Summary of 8-ANS fluorescence-based CMC measurements for detergent standards and for CHOBIMALT. **Column A**: observed fluorescence intensity as a function of detergent concentration. **Column B**: reciprocal fluorescence intensity ratio as a function of detergent concentration used to estimate CMC. **Column C**: fluorescence intensity as a function of the detergent concentration, sampled around the breakpoint observed in Column B. The excitation frequency was 410 nm for all samples. The plotted emission intensity was at the maximum of the emission spectrum observed between 425 and 550nm: Brij-35 (484 nm), Tween-20 (483 nm), Triton-X100 (483 nm), DDM (480 nm), and CHOBIMALT (465 nm). All samples were prepared in pure water and examined at 20°C. Breakpoints observed in Column B and C are listed in Supporting Table 2 with the determined CMC values.
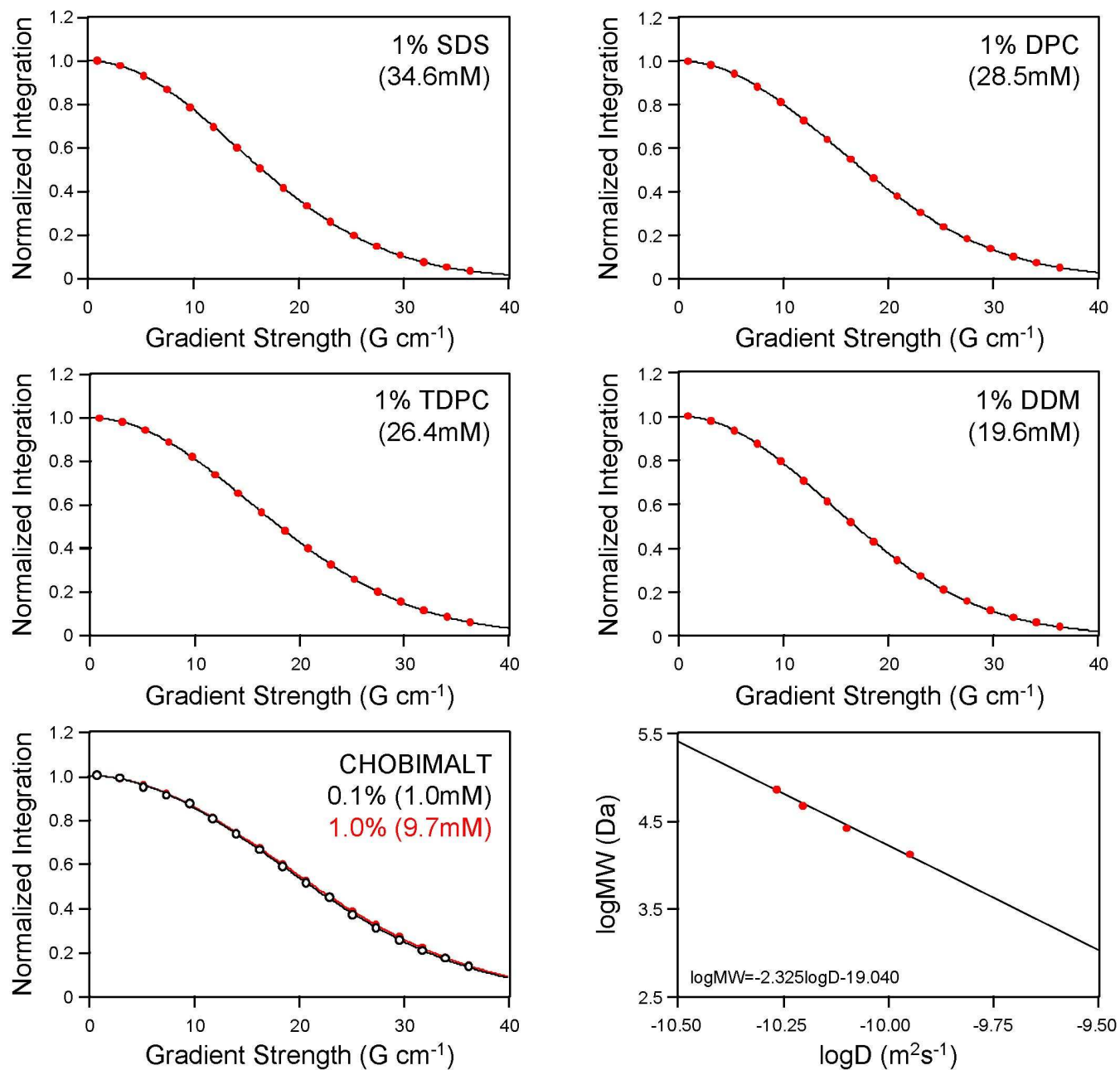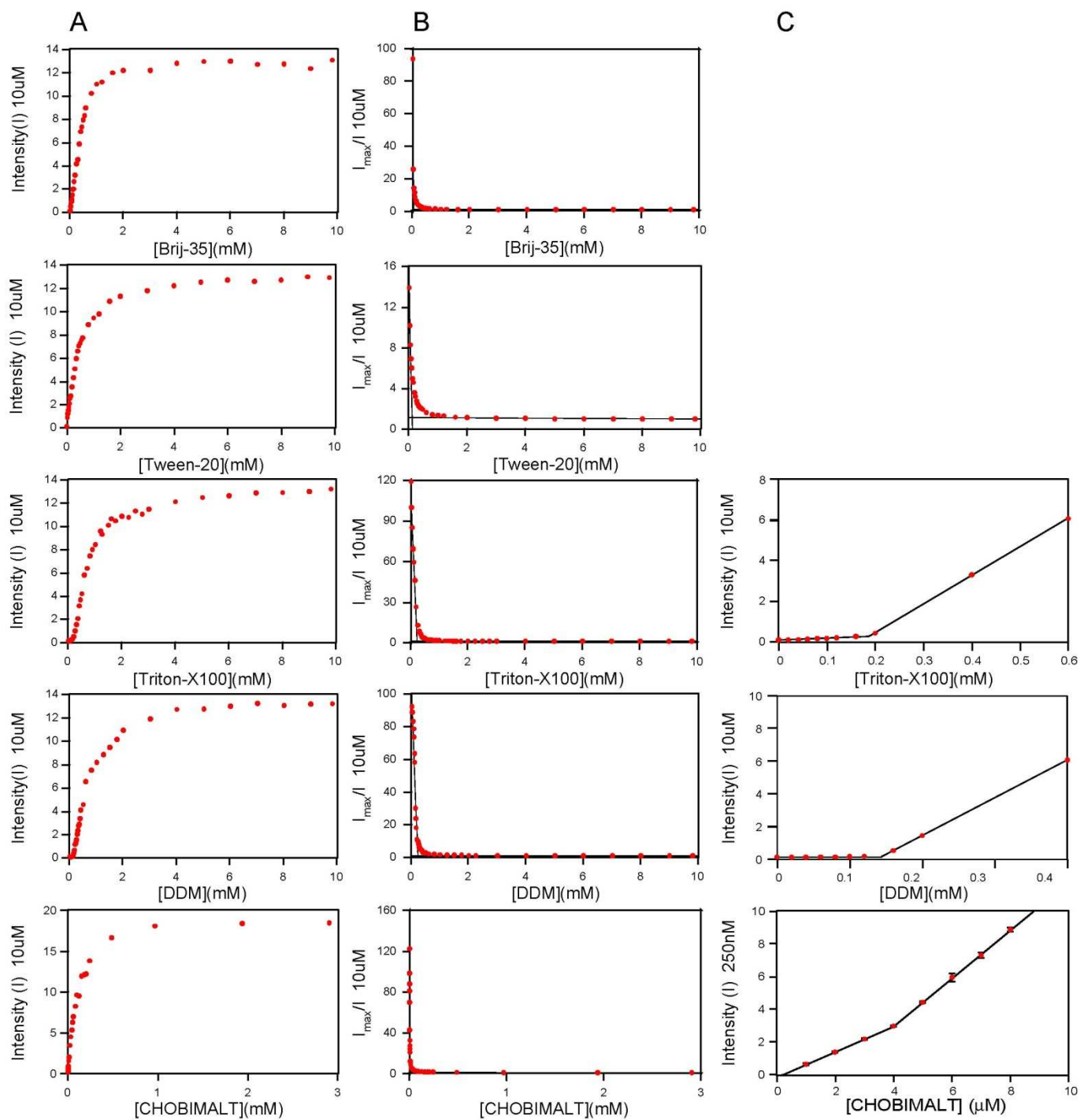
Figure S1

Figure S2

Supporting Table 1: Translational diffusion coefficients and literature values for micellar aggregate weights for detergent standards and for CHOBMIALT. The concentrations listed are those at which the diffusion coefficients were measured.

Detergent	Concentration Examined (mM)	Diffusion Coefficient D (10^{-11} m^2s^{-1})	Reported Micelle Weight (kDa)
sodium dodecyl sulfate	35	11.2(±0.1)	13[1]
fos-choline-12 (dodecylphosphocholine)	29	7.9(±0.1)	26[2]
fos-choline-14 (tetradecylphosphocholine)	26	6.2(±0.1)	47[3]
n-dodecyl-β-D-maltopyranoside (DDM)	20	5.4(±0.1)	72[3]
CHOBIMALT	10 (1%) 1.0 (0.1%)	3.3(±0.1) 3.4(±0.1)	

Supporting Table 2: Comparison of CMC measured for conventional detergents using different fluorescence-based methods (see Results section) with literature values.

	CMC (mM)			
Detergent	**8-ANS** (I_{max}/I)	**8-ANS** **(Intensity)**	**Pyrene** (I_1/I_3)	**Literature**
Brij-35	0.06	N/D	N/D	0.05-0.1[4]
Tween-20	0.11	N/D	N/D	0.06[4]
Triton-X100	0.23	0.18(±0.05)	N/D	0.2-0.9[4]
n-dodecyl-β-D-maltopyranoside	0.22	0.15(±0.02)	0.17(±0.01)	0.165[6]
CHOBIMALT	0.003	0.004 (±0.001)	0.0030 (±-.0005)	

Supporting References

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