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Supporting Information for:

Light-Induced Transformation of Vesicles to Micelles and Vesicle-Gels to Sols

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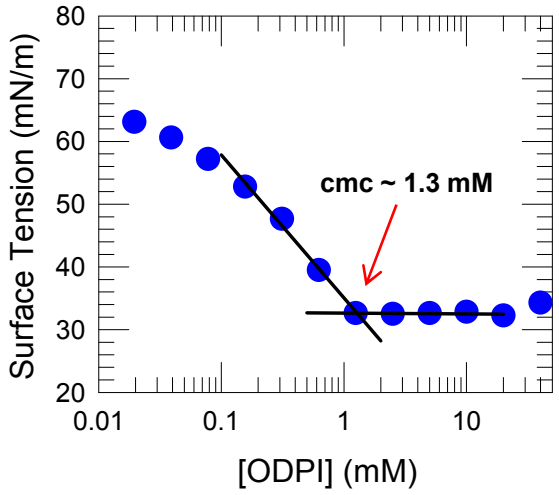

Figure S1. Surface tension values are plotted over the range of concentrations of ODPI in 50 mM phosphate buffer. The plot shows the typical behavior expected for surfactants, i.e., a drop in surface tension followed by a plateau. The CMC value obtained from the intersection point of the two regressed lines is 1.3 mM.

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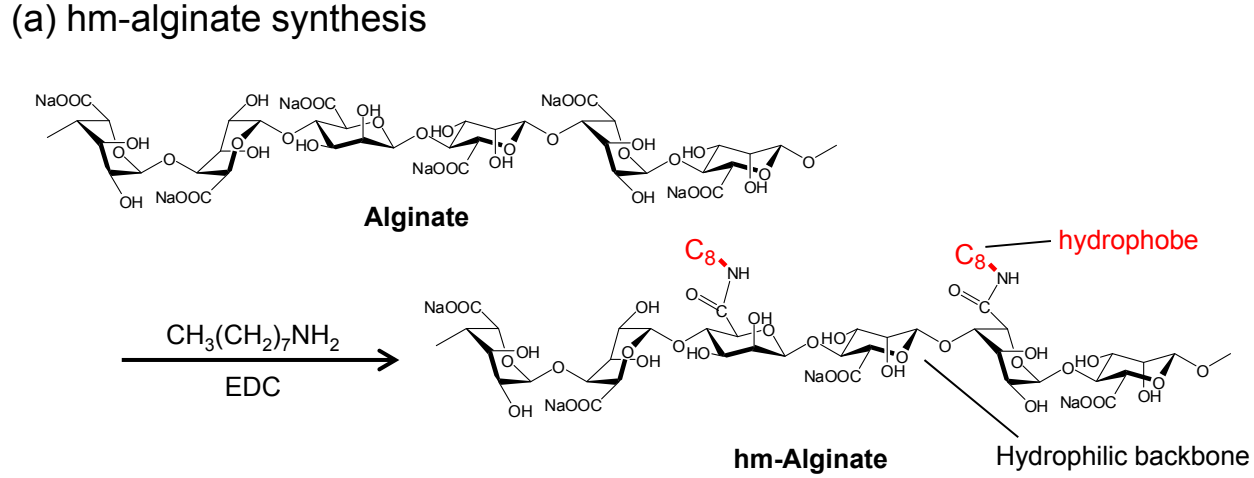

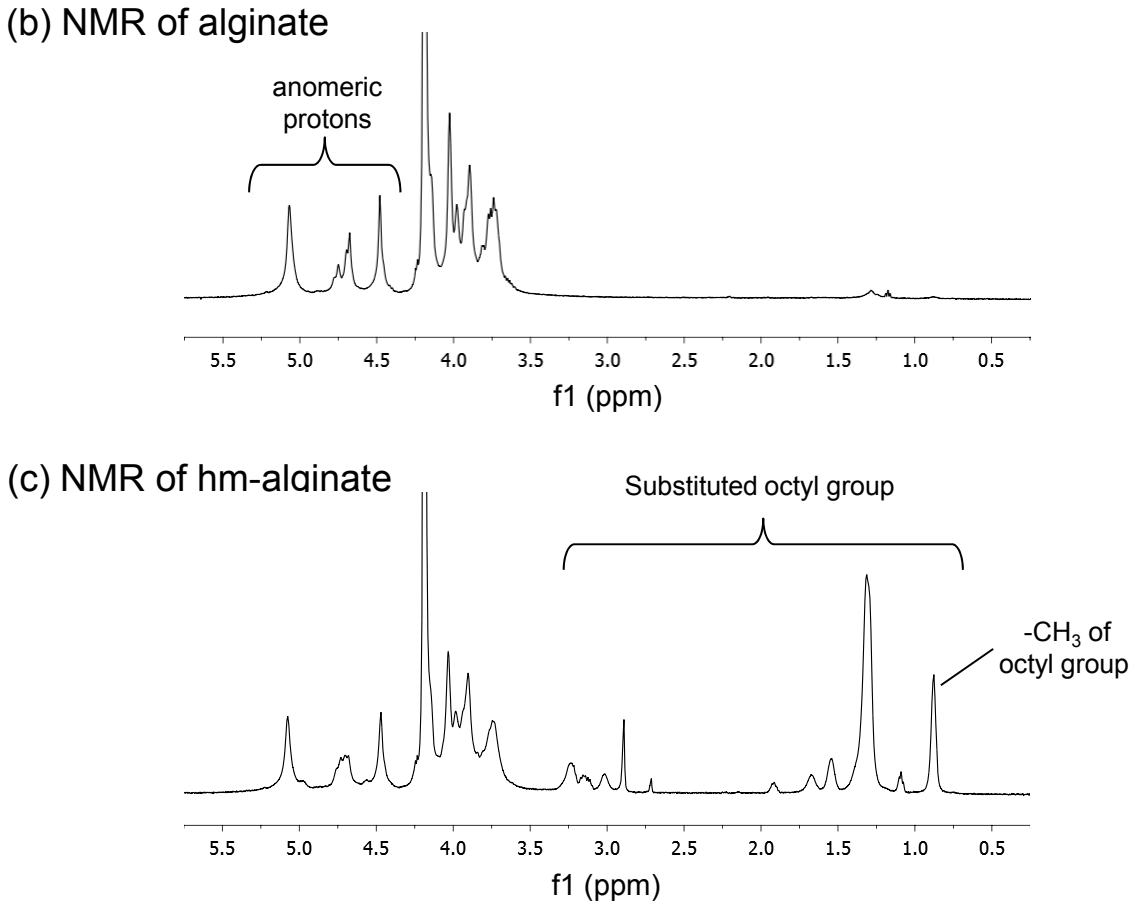

Figure S2. (a) Reaction scheme for synthesis of hm-alginate. This involves amidation of sodium alginate with n-octylamine using the coupling agent EDC. ^{1}H NMR spectra of alginate (b) and hm-alginate (c). From the peaks of anomeric protons, the G content of alginate was calculated to be 51.2%.[1] The ^{1}H NMR spectrum of hm-alginate shows additional peaks (0.8 ~ 3.3 ppm, 4.9 ppm) which indicate the successful modification of alginate with octyl groups. From the ratio of methyl protons to anomeric protons, the degree of modification was obtained to be 23%.[2]

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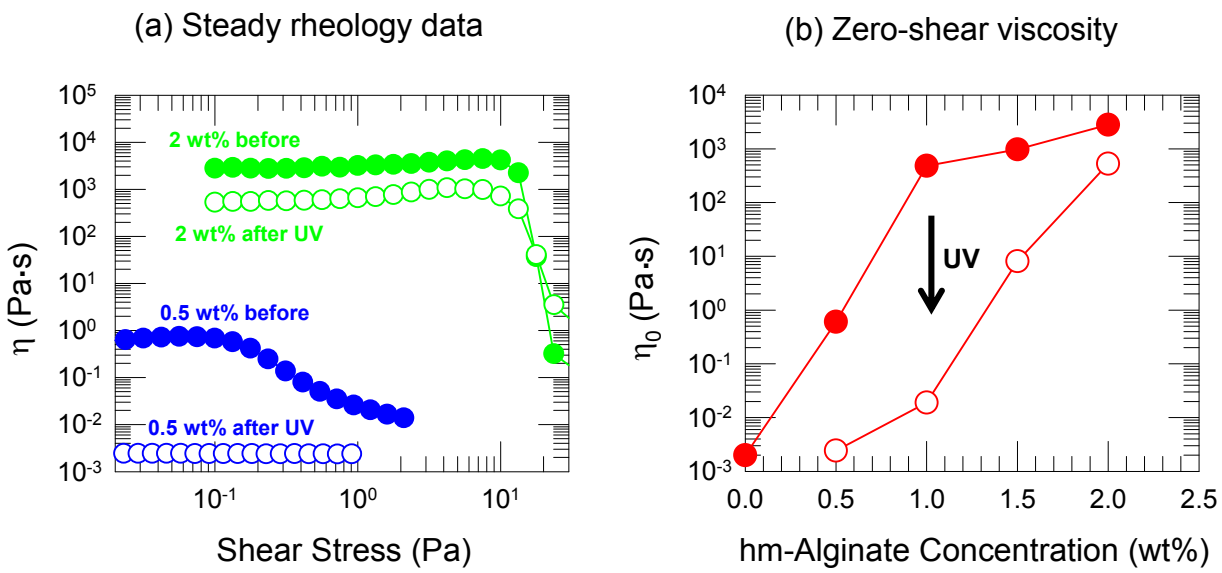

Figure S3. Rheology of vesicle gels before and after UV irradiation: Effect of altering the hm-alginate concentration at a constant ODPI/SDBS vesicle concentration of 2 wt%. (a) Representative steady-shear rheology data for samples before (closed circles) and after 45 min of UV irradiation (open circles): 2 wt% hm-alginate (green symbols); 0.5 wt% hm-alginate (blue symbols). (b) From the steady rheology data, the zero-shear viscosity η_0 is plotted against the hm-alginate concentration: before UV irradiation (closed red circles); after 45 min of UV irradiation (open red circles).

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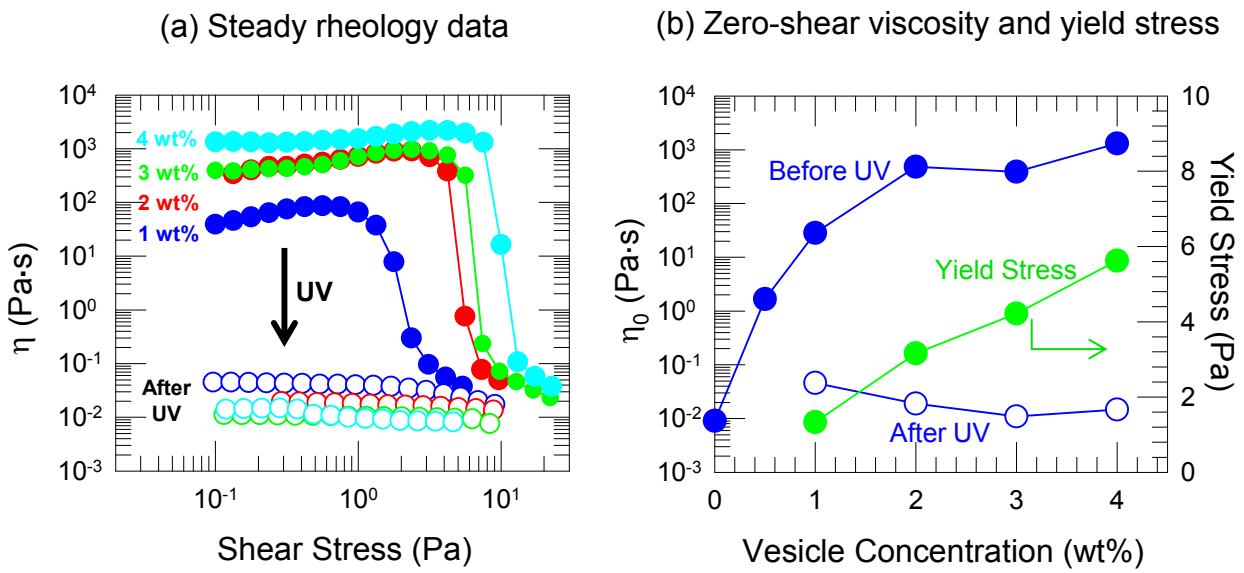

Figure S4. Rheology of vesicle gels before and after UV irradiation: Effect of altering the ODPI/SDBS vesicle concentration at a fixed hm-alginate concentration of 1 wt%. (a) Steady-shear rheology data for samples before (closed circles) and after 45 min of UV irradiation (open circles) for vesicle concentrations of 1 wt% (blue symbols), 2 wt% (red), 3 wt% (greeen) and 4 wt% (cyan). (b) From the steady-shear data, the zero-shear viscosity η_0 and the apparent yield stress (point of sharp drop in viscosity) are plotted against the vesicle concentration: η_0 before UV irradiation (closed blue circles); yield stress before UV irradiation (closed green circles); η_0 after 45 min of UV irradiation (open blue circles).

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References

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2. Galant, C.; Kjoniksen, A. L.; Nguyen, G. T. M.; Knudsen, K. D.; Nystrom, B. “Altering associations in aqueous solutions of a hydrophobically modified alginate in the presence of beta-cyclodextrin monomers.” *J Phys Chem B* **2006**, *110*, 190-195.