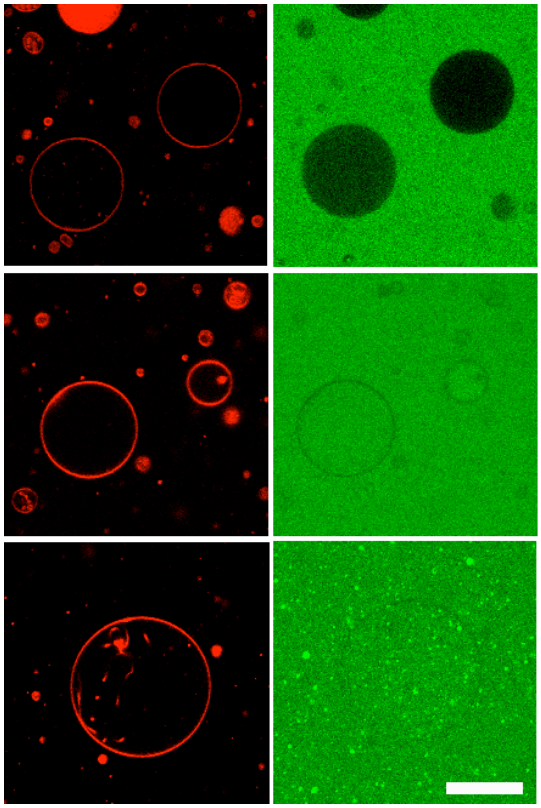
Supporting Information

Macromolecular Crowding Improves Polymer Encapsulation within Giant Lipid Vesicles

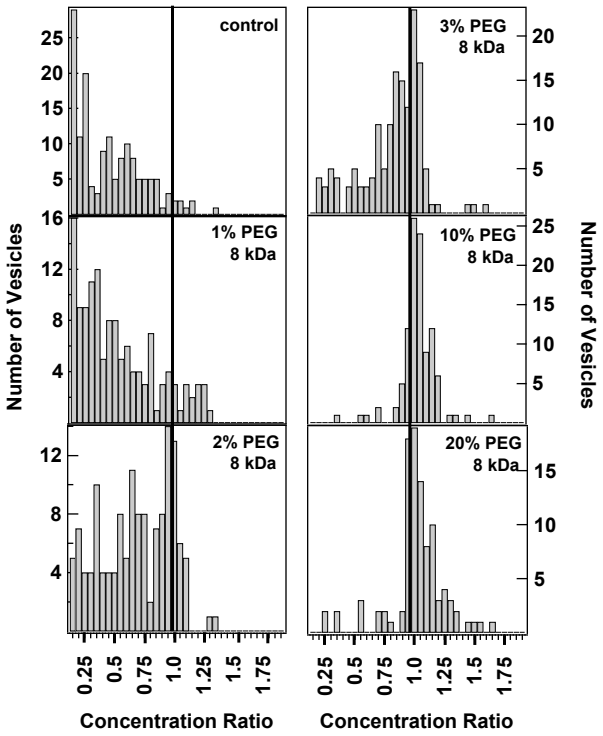
*Lisa M. Dominak and Christine D. Keating**

Department of Chemistry, Pennsylvania State University, University Park, PA 16802.

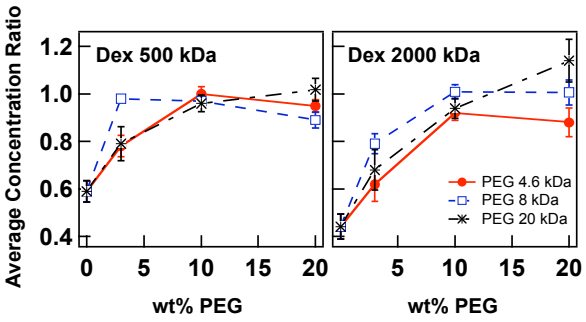
keating@chem.psu.edu



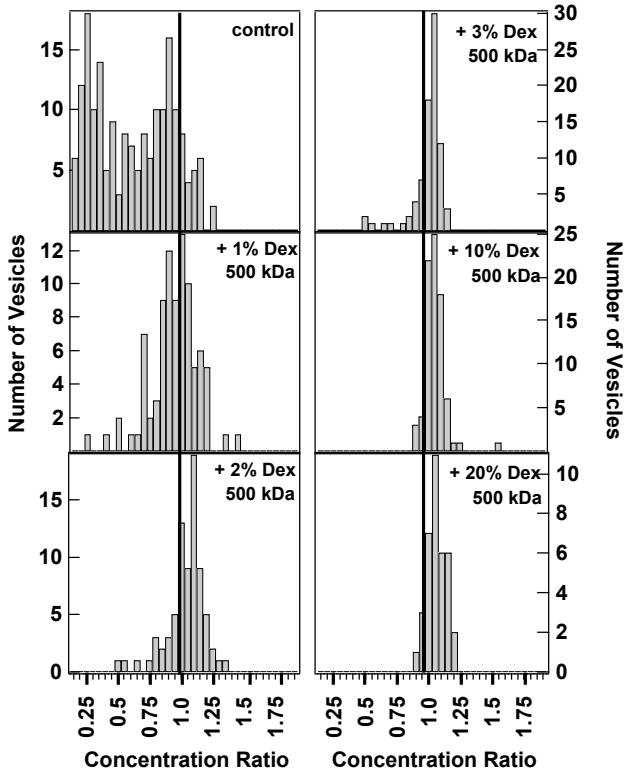
Supporting Figure 1. Red (Rhodamine-DOPE) and green (FITC-dextran) channels from overlaid data Figure 1. From top to bottom: FITC-dextran 500 kDa control, with 3% PEG 8 kDa added, with 20% PEG 8 kDa added. The scale bar is 20 microns.



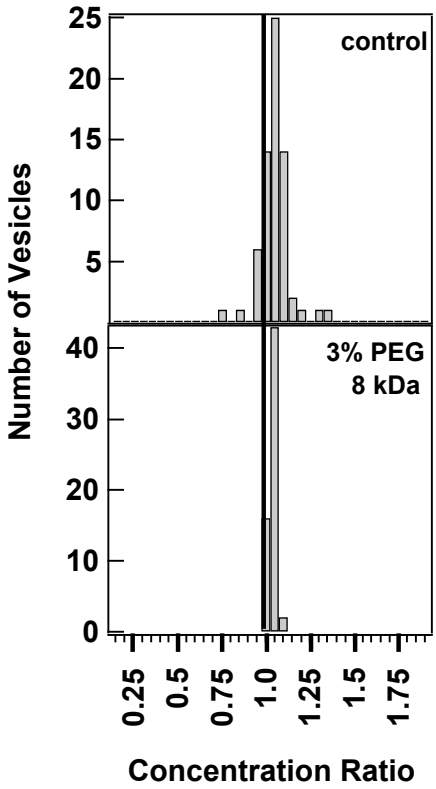
Supporting Figure 2. Histograms of the concentration ratio (C_i/C_o) for encapsulation of 0.082 μM (C_o) FITC-dextran 2,000 kDa with increasing amounts of PEG 8 kDa (top to bottom, left to right panels) in individual GVs (EE_{ind}).



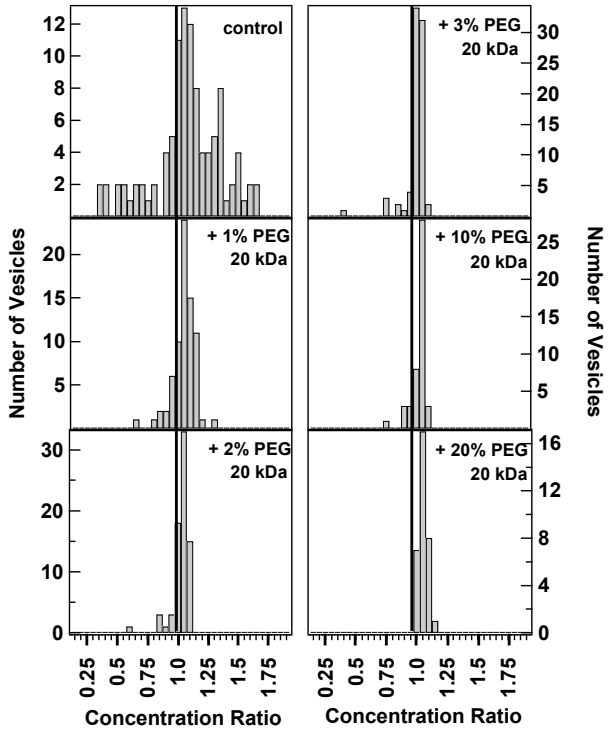
Supporting Figure 3. Plots of average concentration ratio (C_i/C_o) vs wt% PEG (molecular weights 4.6, 8, and 20 kDa). Left – FITC-dextran 500 kDa (0.24 μM), Right – FITC-dextran 2000 kDa (0.082 μM).



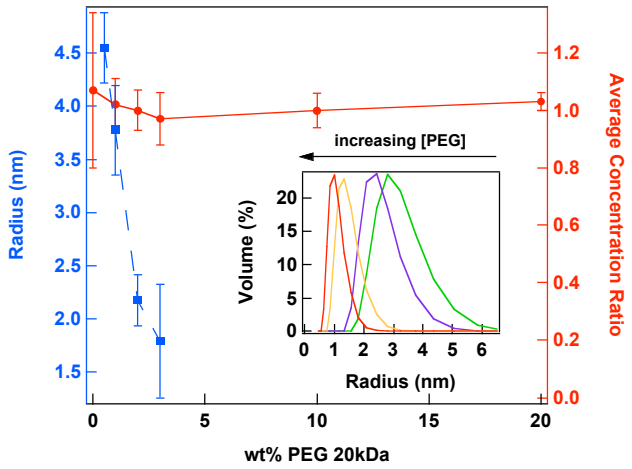
Supporting Figure 4. Histograms of the concentration ratio (C_i/C_o) for encapsulation of 0.24 μM (C_o) FITC-dextran 500 kDa with increasing amounts of unlabeled dextran 500 kDa (top to bottom, left to right panels) in individual GVs (EE_{ind}).



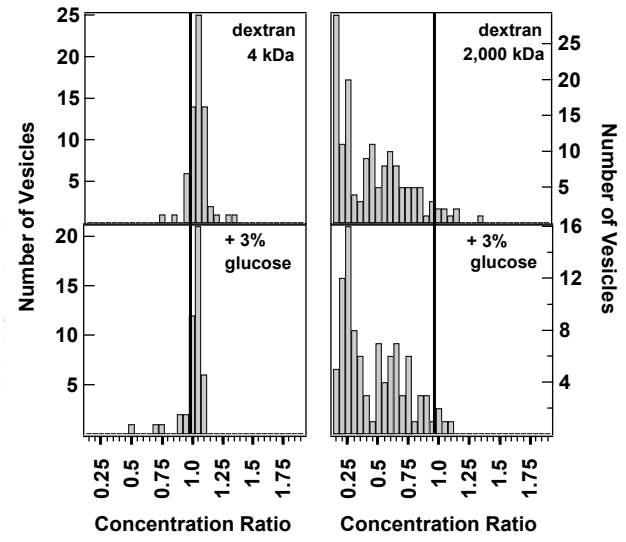
Supporting Figure 5. Histograms of the concentration ratio (C_i/C_o) for encapsulation of 186 μM (C_o) FITC-dextran 4 kDa (top) and FITC-dextran 4 kDa + 3% PEG 8 kDa (bottom) in individual GVs (EE_{ind}).



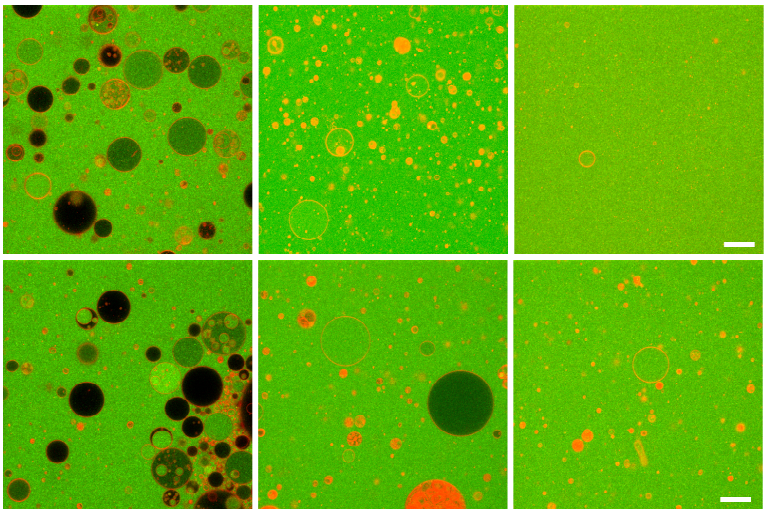
Supporting Figure 6. Histograms of the concentration ratio (C_i/C_o) for encapsulation of 23 μM (C_o) Alexa Fluor 488 – PEG 20 kDa with increasing amounts of unlabeled PEG 20 kDa (top to bottom, left to right panels) in individual GVs (EE_{ind}).



Supporing Figure 7. (solid line/circles) Average concentration ratio (C_i/C_o) of Alexa Fluor 488 – PEG 20 kDa (23 μM, (C_o)) with increasing amounts of unlabeled PEG 20 kDa in individual GVs (EE_{ind}). Error bars represent the standard deviation from the mean. (dashed line/squares) PEG 20 kDa r_h (nm) as a function of increasing concentrations of unlabeled PEG 20 kDa; error bars are the standard deviation. Insets: Volume distribution of PEG radius as a function of increasing amounts of unlabeled PEG. From the right-most peak to the left-most represents 0.5, 1, 2, and 3 wt% unlabeled PEG added.



Supporting Figure 8. Histograms of the concentration ratio (Ci/Co) for encapsulation of 186 μM (Co) FITC-dextran 4 kDa (control, top left) and 0.082 μM FITC-dextran 2,000 kDa (control, top right) and with 3 wt% glucose added (bottom).



Supporting Figure 9. Typical images for FITC-dextran 2,000 kDa with increasing amounts unlabeled dextran 2,000 kDa (top) and PEG 8 kDa (bottom). From left to right: control (0.082 μM FITC-dextran 2,000 kDa), with 3 wt%, and with 20 wt% unlabeled dextran 2,000 kDa (top)/PEG 8 kDa (bottom) added. Scale bar is 20 μm.