Relationship between Vesicle Size and Steric Hindrance Influences Vesicle Rupture on Solid Supports

Supporting Information

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SI Figure Legend

Figure S1. Lognormal Size Distributions of Vesicle Samples Used in QCM-D Experiments. The intensity as a function of hydrodynamic diameter is plotted for each vesicle sample in arbitrary units (a.u.). The highest intensity value corresponds to the intensity-weighted average hydrodynamic diameter.

Figure S2. Relationship between Vesicle Size and Rupturing Kinetics in Small Vesicle Regime. Based on the QCM-D plots in Figure 1, the time at which vesicle rupturing commences is plotted as a function of vesicle size in the small vesicle regime. A weak dependence in this relationship is observed and can be described approximately as $t_\ast \propto R_s^{1/2}$, where $t_\ast$ is the time corresponding to the critical coverage and $R_s$ is the vesicle radius in solution.

Figure S3. FRAP Measurements for Lipid Assemblies on Silicon Oxide. Image traces of normalized fluorescence intensity were collected across the bleached spots from minus 1 to 60 sec in order to monitor the recovery of fluorescence signal. The size values presented in the figure correspond to size of the extrusion pore size. Scale bar is 20 µm.
SI Figures

Figure S1

A. 63 nm
B. 97 nm
C. 126 nm
D. 198 nm
E. 529 nm
Figure S2

A linear plot showing the relationship between $t_s$ (min) and $R_s^{1/2}$ (nm$^{1/2}$). The data points are connected by a red line, indicating a positive correlation.

$t_s$ (min) vs. $R_s^{1/2}$ (nm$^{1/2}$)
Figure S3

30nm Filtered Vesicle

50nm Filtered Vesicle

100nm Filtered Vesicle

200nm Filtered Vesicle

400nm Filtered Vesicle

1000nm Filtered Vesicle