

Specific Interactions of Complementary Mono- and Multivalent Guests with Recognition-Induced Polymersomes

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Supplementary Data:

Experimental Section:

Probability Histograms:

All probability histograms were generated by fitting size distributions to the following equation published in: Mavelli, F.; Luisi, P. L. *J. Phys. Chem.* **1996**, *100*, 16600-16607.

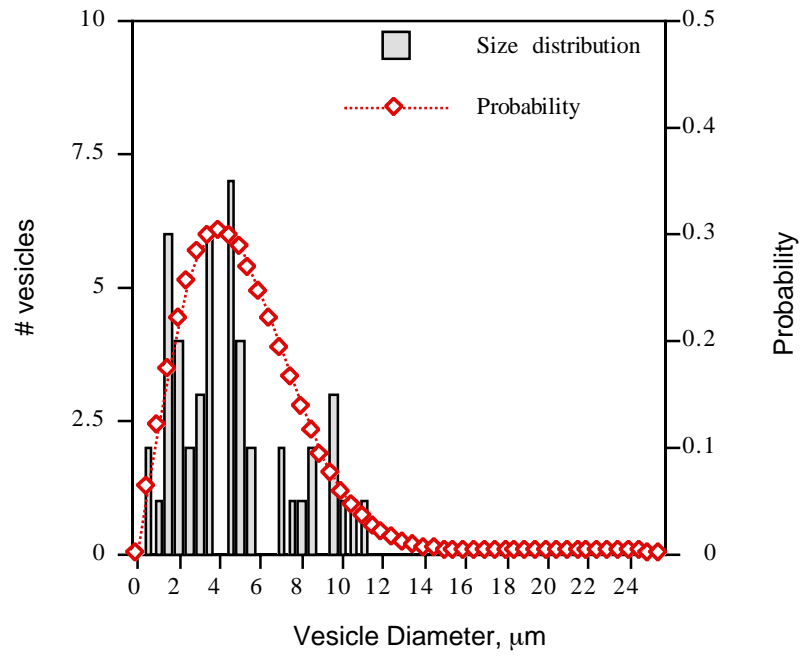
$$P(r_i) = \frac{2r_i}{r_o^2} \exp \left\{ - \left(\frac{r_i}{r_o} \right)^2 \right\} \text{ where } r_o = \frac{2}{\sqrt{\pi}} r_{av}$$

Flavin Incorporation:

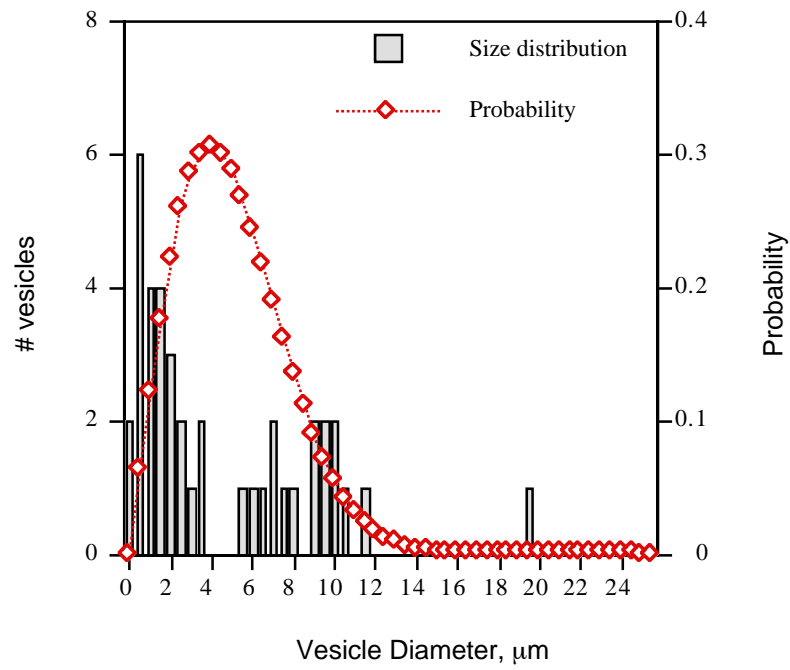
The following probability histograms were generated from the size distributions of RIPs (3 mg/mL polymers **1** and **2**) doped with flavin **3**. The corresponding DAP to flavin ratio is 12:1. From the following histograms, it is evident that the mathematical model does not fit the flavin-doped RIP system immediately upon addition of flavin **3**. It is not until the RIPs have equilibrated back to their original state (40 minutes) that the RIPs conform moderately well to the equation.

S2

t = 0 minutes

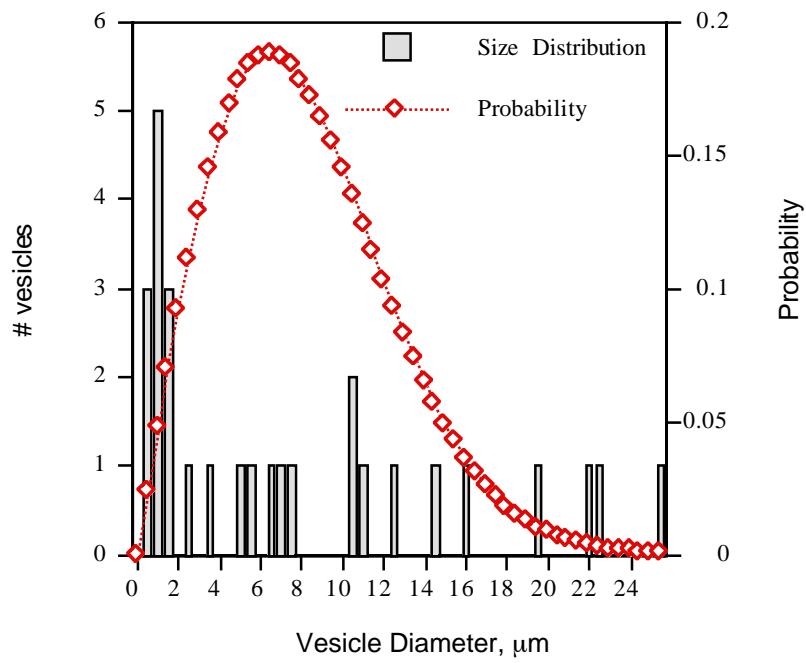


t = 0.5 minutes

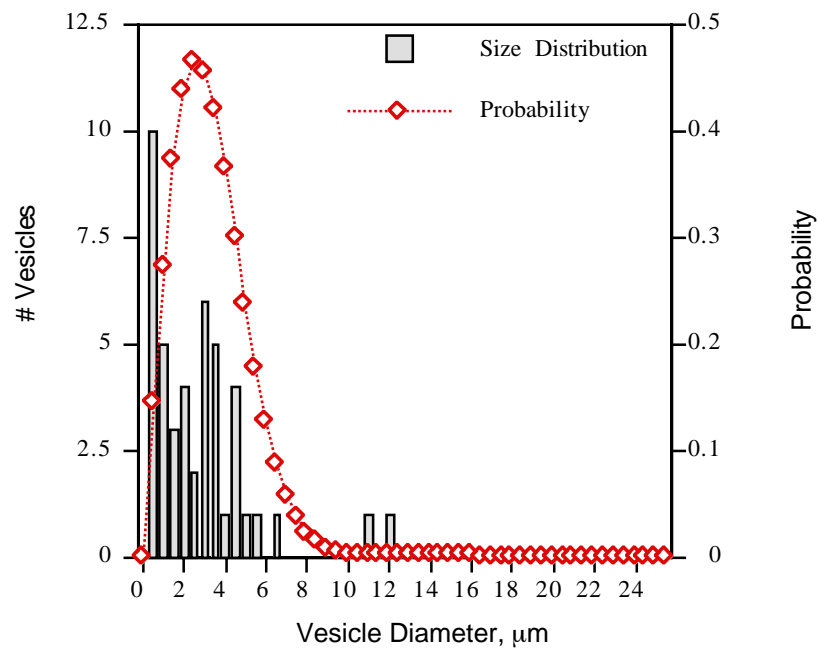


S3

t = 10 minutes

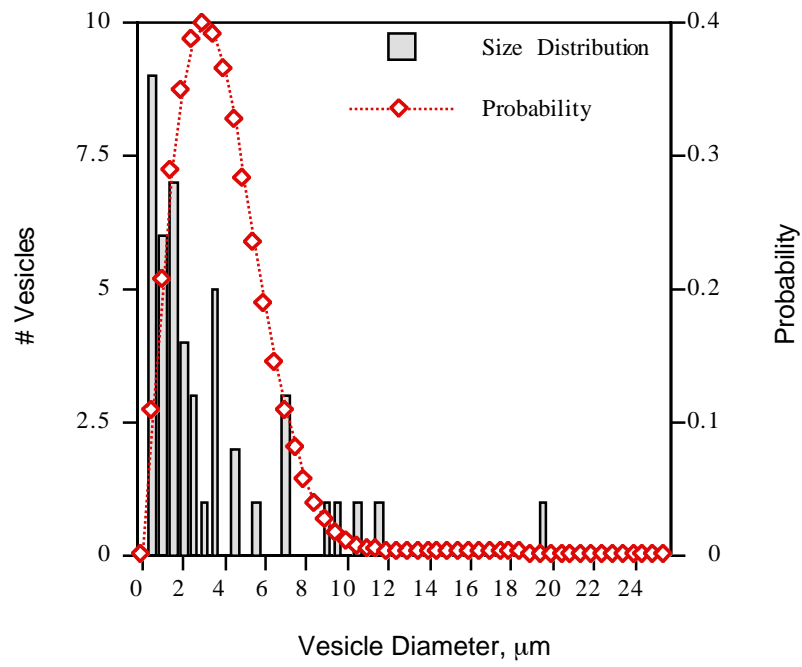


t = 20 minutes

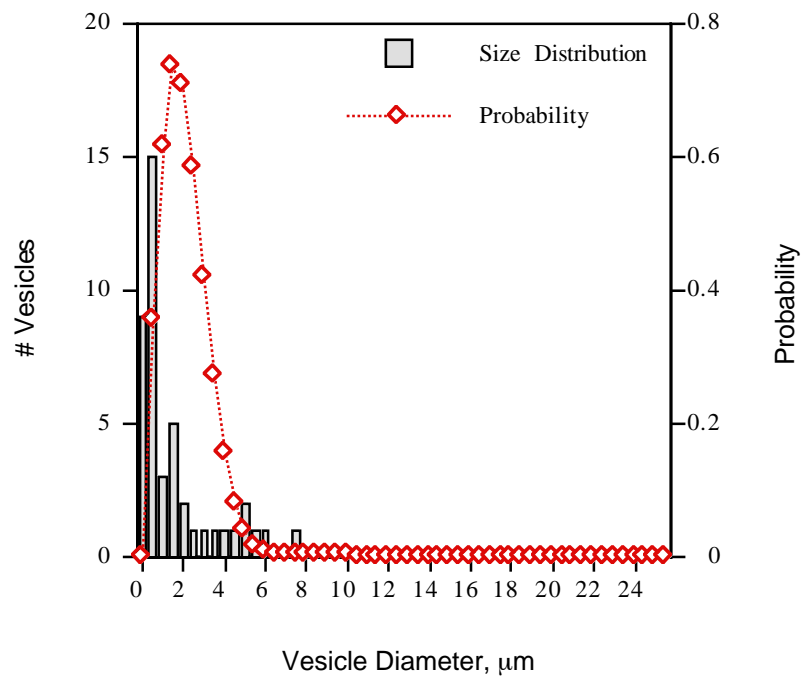


S4

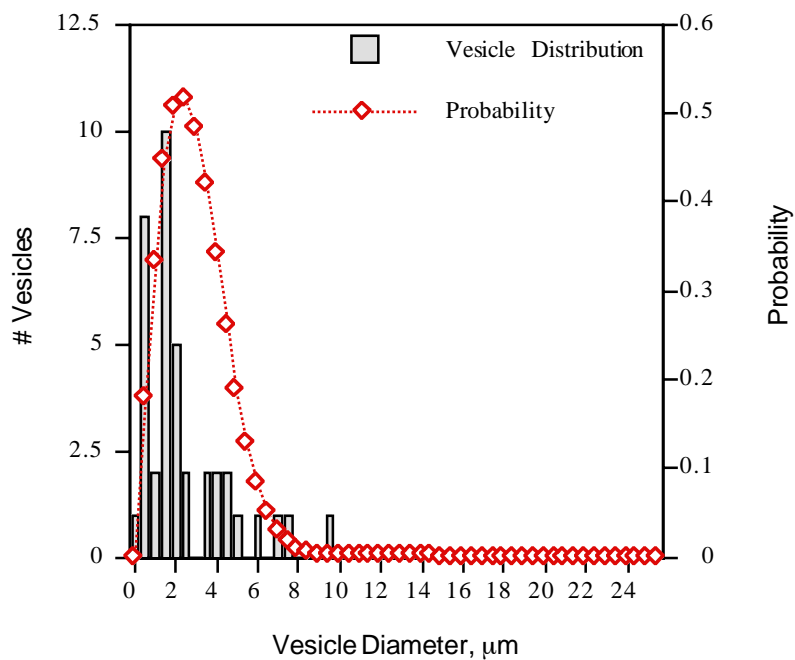
t = 30 minutes



t = 40 minutes



t = 50 minutes

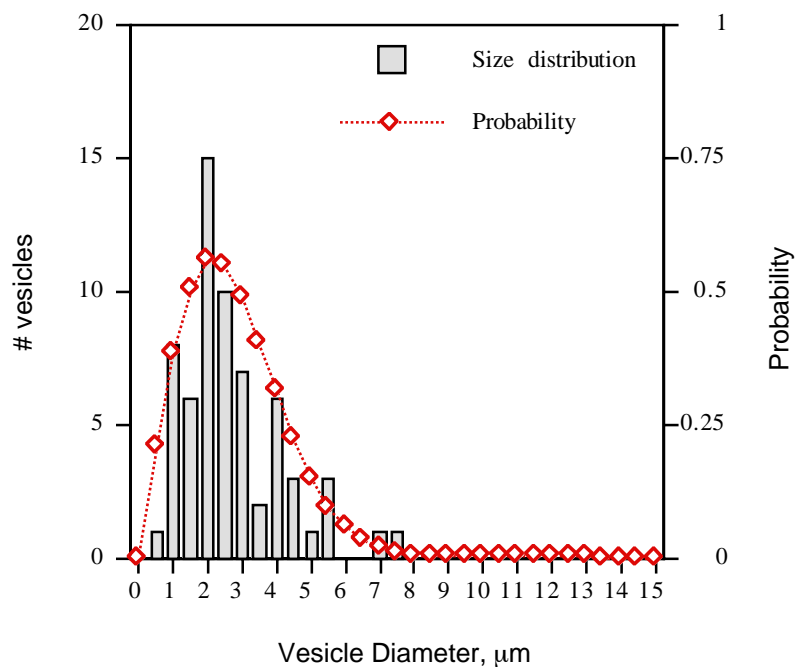


Nanoparticle Incorporation:

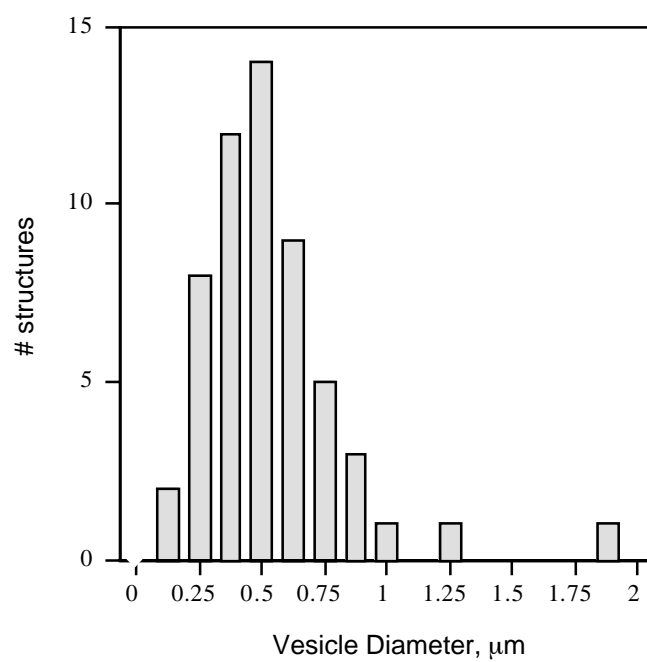
The following histograms were generated from the size distributions of RIPs (3 mg/mL polymers **1** and **2**) doped with **Thy-Au** (5 mg/mL) as studied at t = 0 by DIC microscopy (initial) and TEM for subsequent times. Diamidopyridine (DAP) element to Thymine elements is 450:1:

S6

‘undoped’ RIPs:

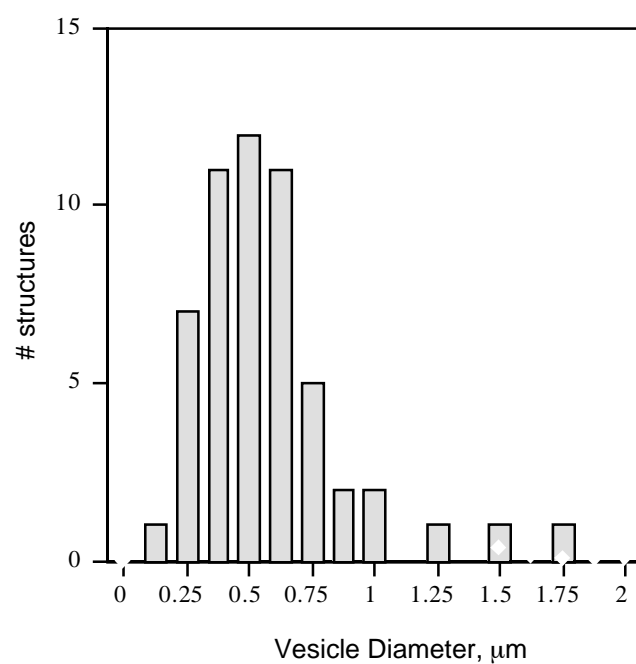


Thy-Au doped RIPs, 60 minutes after combination:

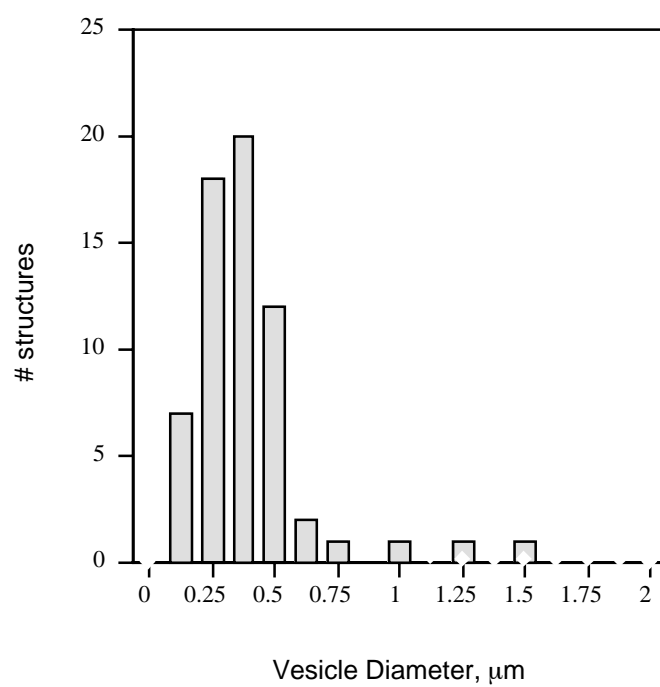


450:1 DAP:Thy element ratio, 60 minutes after combination of **Thy-Au** and RIPs.
Probability is not included as there is no evidence that resulting structures are vesicular.

S7



220:1 DAP:Thy element ratio, 60 minutes after combination of **Thy-Au** and RIPs.



100:1 DAP:Thy element ratio, 60 minutes after combination of **Thy-Au** and RIPs.