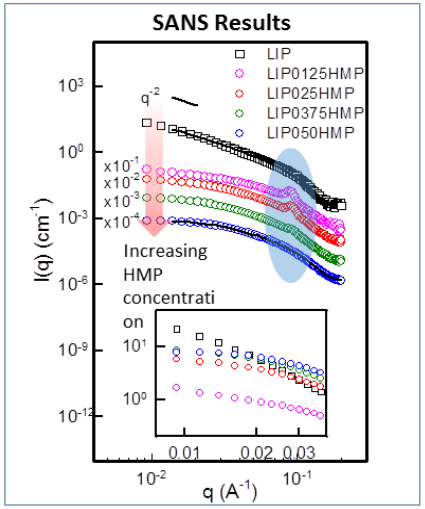
Amphiphilic Polypeptoids Serve as the Connective Glue to Transform Liposomes into Multilamellar Structures with Closely Spaced Bilayers

Scientific Achievement

A new hydrophobically modified polypeptoid (HMP) was shown to induce morphological transition of liposome into multilamellar structures

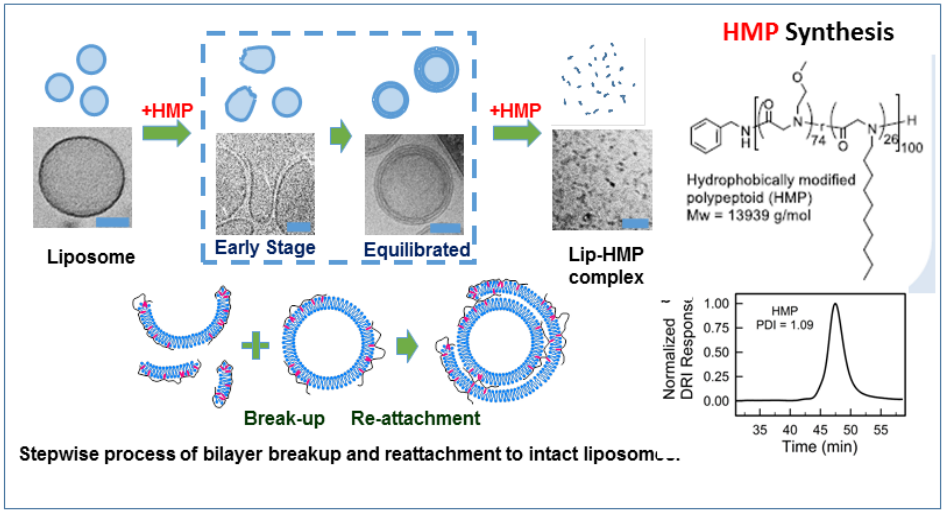
Significance and Impact

Opens new research directions in the development of new materials and approaches for multi-drug encapsulation and delivery and transmembrane protein recovery.



Research Details

- HMP induces in the liposome-to-multilamellar morphological transition in a concentration dependent manner
- At low concentrations of HMP, multilamellar vesicles are formed through a mechanism of patchwise addition of lipid rafts onto existing liposomes
- At higher concentrations of HMP, we see a total breakdown of liposomes into small aggregates symptomatic of lipid rafts



Zhang, Y.; Xuan, S.; Owoseni, O.; Omarova, M.; Li, X.; Saito, M.; He, J.; McPherson, G.; Raghavan, S.; Zhang, D. *; John, V.* *Langmuir* **2017**, DOI: 10.1021/acs.langmuir.6b04190.

HMP induced structural evolution of lipid assemblies as revealed by SANS and cryoTEM studies.

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LACNS Louisiana Consortium for Neutron Scattering
LSU Louisiana State University
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