Proposal Review 3 : 1803948

Back to Proposal

Agency Name:	National Science Foundation
Agency Tracking Number:	**1803948**
Organization:	
NSF Program:	FD-Fluid Dynamics
PI/PD:	Young, Yuan-Nan
Application Title:	Collaborative Research: Osmophoresis: Propulsion of Semipermeable Vesicles Driven by Chemical Gradients
Rating:	Good

Review

Summary

In the context of the five review elements, please
evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

Strengths:

The experimental and theoretical work investigating the dynamics of osmophoresis of semipermeable vesicles are interesting.

Weaknesses:

The details in section 3.3.2 "Delivery of drug cargos in deep, confined pore spaces" with respect to the size and dimension of the pores, target area, andà are missing.

The details of experimental tests such as size and number of giant unilamellar vesicles (GUVs), number of tests, à are missing.

Multiple PI leadership arrangement (i.e., such as communication plan and conflict resolution, andà) is missing.

In the context of the five review elements, please
evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

Strengths:

The PIs have outreach programs for undergraduate, graduate and high school students.

Weaknesses:

The assessment process for outreach activities lack details. There is no indication of number of high school students that will be involved. What type of learning assessments will be measured?

Please evaluate the strengths and
weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if
applicable

Summary Statement

The PIs aim to understand osmophoresis quantified by the migration speed and its dependence on various parameters (i.e. vesicle type and size, membrane composition, solute type and solution viscosity) using a combination of microfluidic experiments and theoretical modeling.