

Industrial & Physical Pharmacy Seminar

IPPH 69600

Monday, February 20, 2023
3:30 PM in RHPH 164

“A scalable nanocarrier formulation platform for improved delivery of small molecules and biologics”



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Abstract:

For both small molecule drugs and biopharmaceuticals, efficient encapsulation into nanoscale delivery vehicles is an attractive approach for improving therapeutic efficacy. Most techniques to prepare nanocarriers struggle to achieve commercial success, however, because they suffer from inefficiencies in (1) independently controlling targets such as vehicle size and surface charge, payload ratios and loading, drug release rates, and encapsulation efficiency, and (2) processing at scale. In this talk, I will describe the large-scale solubility engineering + nanoprecipitation platform my lab uses to formulate a wide range of APIs, using as examples nanocarrier formulations of strongly hydrophobic global health drugs, highly hydrophilic antibiotics, protein antigens, and mRNA. I will discuss processing at industrial scale and end with a perspective on future opportunities such as targeted formulations and co-formulating APIs from different classes for drug synergism.