

Tkach, Colleen

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From: Yount, Velda

KECK SCIENCE DEPARTMENT SEMINAR

“Biologically inspired nanoparticles for chronic and genetic diseases”

Eun Ji Chung, Scripps '06
Department of Biomedical Engineering
University of Southern California

Friday, April 14, 2023
12:15-1:15pm
Burns Lecture Hall (B31)
Keck Science Center

“Light refreshments will be served after the seminar”

Abstract: Peptide amphiphiles micelles are small, organic nanoparticles that offer unique properties as nanocarriers for drug delivery and diagnostic applications. Chemical diversity and hydrophilic-hydrophobic compartments enable multifunctionality and offer opportunities for theranostic applications and combination therapy; the peptides and lipid backbones offer incorporating ligands for specific disease targeting while ensuring biocompatibility and biodegradation; the small size and tunable physiochemical and nanomaterial properties offers tailored biodistribution and pharmacokinetic properties *in vivo*. In this presentation, I will discuss how these advantages of peptide amphiphile micelles can be harnessed to bypass existing physiological and biological barriers in the body to enable enhanced homing and therapeutic outcomes for cardiovascular diseases to rare, genetic diseases of the kidney. Additionally, we will discuss the use of extracellular vesicles as endogenous nanoparticles that offer safety and advantages as drug delivery carriers for a diversity of cargo. In sum, we discuss the promise and demand of nanomedicine and the potential of biologically inspired nanoparticles to meet such promise.

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