CHICAGOLAND PHARMACEUTICAL DISCUSSION GROUP

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PROGRAM: DESIGN OF REDISPERSIBLE HIGH-DRUG-LOAD AMORPHOUS NANOPARTICLE FORMULATIONS: IMPACT OF IONIC VS NONIONIC SURFACTANTS

DATE: THURSDAY, OCTOBER 3, 2024

SPEAKER: DR. MIKI YU, ABBVIE, INC.

Amorphous solid dispersions (ASDs) are an enabling formulation approach used to enhance bioavailability of poorly water-soluble molecules in oral drug products. Drug-rich amorphous nanoparticles generated in situ during ASD dissolution maintain supersaturation that drives enhanced absorption. However, in situ formation of nanoparticles requires large quantities of polymers to release drugs rapidly, resulting in an ASD drug load <25%. Delivering directly engineered drug-rich amorphous nanoparticles can reduce the quantities of polymers significantly without sacrificing bioavailability. Preparation of 90% drug-load amorphous nanoparticles (ANPs) of <300 nm diameter using solvent/antisolvent nanoprecipitation, organic solvent removal, and spray drying was demonstrated previously on model compound ABT-530 with Copovidone and sodium dodecyl sulfate (anionic). In this work, nonionic surfactant D-α-tocopheryl polyethylene glycol succinate (Vitamin E TPGS, or TPGS) was used to prepare ANPs as a comparison. Characterization of ANPs by dynamic light scattering, filtrate potency assay, scanning electron microscopy, and differential scanning calorimetry revealed differences in surface properties of nanoparticles afforded by surfactants. This work demonstrates the importance of understanding the impact of the stabilizing agents on nanoparticle behavior when designing a highdrug-load amorphous formulation for poorly water-soluble compounds as well as the impact on redispersion.

Dr. Yu is a Senior Scientist at AbbVie, in Small molecule drug product design and development, with a focus on formulation development in early phases. Dr. Yu obtained her Bachelor as well as Ph.D. degree in chemical engineering. Her thesis was in mixing and segregation of granular materials. After her Ph.D. work, she joined AbbVie as a postdoc working on amorphous nanoparticles formulations, aiming to develop formulation/process that achieve similar bioavailability compared to ASD at a high drug loading. Dr. Yu is currently working on a manuscript that demonstrates comparative clinical bioavailability of this approach..

TIME: 5:30 PM – SOCIAL HOUR
6:00 PM – DINNER
7:00 PM – MEETING
PLACE: DOVER STRAITS
890 US-45, MUNDELEIN, IL 60060
COST: $55.00

REGISTER AT cpdgmeeting@gmail.com
ZELLE PAYMENT AT cpdg2022@gmail.com

THE DINNER MEAL CHOICES ARE THE FOLLOWING:

1. NY STRIP STEAK – WITH BÉARNAISE SAUCE
2. LAKE SUPERIOR WHITFISH – WITH AMANDINE SAUCE
3. CHICKEN LIMON – SAUTÉED WITH LEMON JUICE, WHITE WINE, AND HERBS & SERVED OVER STEAMED SPINACH
4. PASTA PRIMAVERA – SERVED VETAGABLES (VEGETARIAN)

WHEN REGISTERING, PLEASE INDICATE YOUR SELECTED DINNER MEAL:

Meal Choice: Steak,Fish, Chicken, or Vegetarian	First Name	Sur (Last) Name	Company

E-MAIL WILL BE SENT
CPDG ACCEPTS CASH, CHECKS (PERSONAL OR COMPANY) OR THROUGH ZELLE
FIRST FIVE STUDENTS ARE FREE
PLEASE MAKE RESERVATIONS EARLY NO-SHOWS WILL BE BILLED ACCORDINGLY
MORE INFORMATION CAN BE FOUND ON THE CPDG WEBPAGE:
https://aaps-cpdg.org/

Firm Registration Deadline of 12:00 p.m., Tuesday, October 1, 2024

DIRECTIONS TO THE OCTOBER 3, CPDG MEETING AT DOVER STRAITS
890 US-45, MUNDELEIN, IL

- **EXIT I-94 AT TOWN LINE RD. (60)**
- **HEAD WEST ON TOWN LINE ROAD (60) AND TURN LEFT ONTO US-45 SOUTH**
- **TURN LEFT TO STAY ON US-45 S**
- **RESTURANT WILL BE ON THE LEFT-HAND SIDE OF THE ROAD**