

# CHICAGOLAND PHARMACEUTICAL DISCUSSION GROUP

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## PROGRAM: AMORPHOUS DRUG-POLYMER SALTS

DATE: THURSDAY, MAY 14, 2026

SPEAKER: DR. LIAN YU

**Abstract.** An amorphous solid dispersion (ASD) typically contains a hydrophobic drug, a hydrophilic polymer, and a surfactant, formulated to enhance solubility and bioavailability. In many ASDs, the drug molecules are neutral or mostly neutral, and here we consider ASDs that contain predominantly ionized drug molecules and polymeric counterions – amorphous drug-polymer salts (ADPS). We show how the degree of salt formation depends on the drug, the polymer, and the method of manufacturing. An ADPS can be more stable against crystallization than a neutral ASD, especially under hot and humid conditions, and have a higher glass transition temperature, which can be described by a modified Fox equation where the salt is treated as a new chemical component. Despite its high physical stability, an ADPS can have excellent release rate and bioavailability. For lumefantrine formulated with polyacrylic acid (PAA), dispersion in 0.1% sodium dodecyl sulphate (SDS) efficiently generates nanoparticles, reaching an apparent solubility 30x higher than the amorphous solubility. This occurs by an ion-exchange mechanism where PAA dissolves and DS joins the drug at 1:1 molar ratio. This mechanism releases the drug more efficiently than the traditional mechanism for a neutral ASD prepared with polyvinylpyrrolidone. The nanoparticles are significantly more bioavailable than crystalline suspension and alternative amorphous formulations. Our results encourage further exploration of ADPS in ASD development and PAA as a dispersion polymer.

**Biography.** Lian Yu is Professor of Pharmaceutical Sciences and Professor of Chemistry at University of Wisconsin-Madison. He received a B.S. in chemistry from Peking University and a Ph.D. in physical chemistry from The Ohio State University. Before joining UW-Madison, he was a researcher at Eli Lilly. His laboratory studies crystallization, polymorphism, glasses, and amorphous drug formulations. His honors include AAPS Fellow and Vilas Distinguished Achievement Professor.



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 In-Person  
\$25.00 Virtual Option  
\$0.00 Student & Post-Doc

**CLICK ON THE FOLLOWING LINK TO REGISTER: [Register Here](#)**  
**ZELLE PAYMENT AT [cpdg2022@gmail.com](mailto:cpdg2022@gmail.com)**  
**OR USE THE FOLLOWING QR CODE :**

**CPDG WOULD LIKE TO ANNOUNCE A NEW VIRTUAL PARTICIPATION  
OPTION FOR THE CPDG SEMINAR AT A REDUCED FEE, STARTING THIS  
YEAR. THE WEBINAR LINK WILL BE SHARED PRIOR TO MEETING.**

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**zelle**

**THE DINNER MEAL CHOICES ARE THE FOLLOWING:**

1. LAKE SUPERIOR WHITEFISH FILET – BROILED AND TOPPED WITH AMANDINE SAUCE
2. BREAST OF CHICKEN LIMON – SAUTÉED WITH LEMON JUICE. WHITE WINE AND HERBS OVER STEAMED FRESH SPINACH
3. JUMBO SHRIMP & PASTA – SAUTEED WITH OLIVE OIL, GREEN ONIONS. TOMATOES. GARLIC AND HERBS OVER FETTUCCHINE PASTA
4. PASTA PRIMAVERA – SERVED VETAGABLES (VEGETARIAN)

**WHEN REGISTERING, PLEASE INDICATE YOUR SELECTED DINNER MEAL:**

Meal Choice: Fish, Chicken, Shrimp. 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, May 12, 2026**

**DIRECTIONS TO THE APRIL 16, 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

