

CHICAGOLAND PHARMACEUTICAL DISCUSSION GROUP

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PROGRAM: ROLE OF WATER IN CHEMICAL STABILITY OF AMORPHOUS SMALL MOLECULAR WEIGHT DRUGS AND BIOLOGICALS: BEYOND MOLECULAR MOBILITY

DATE: THURSDAY, JANUARY 26, 2023

SPEAKER: DR. EVGENYI SHALAEV, ABBVIE, INC.

Molecular mobility has been traditionally invoked to explain impact of water on physical and chemical stability of diverse pharmaceutical systems. Although the molecular mobility concept has been credited with creating a scientific basis for stabilization of amorphous pharmaceuticals and biopharmaceuticals, it has become increasingly clear that this approach represents only a partial description of the underlying fundamental principles. An additional mechanism is proposed herein, which highlights water as a catalyst of various chemical reactions, while also taking into consideration role of water in thermodynamic stability of higher-order structure of protein molecules. The presentation covers the following topics:

- Three types of water impact on stability of amorphous pharmaceuticals: empirical observations.
- Water as an (anti)plasticizer for different molecular mobility modes.
- Water catalysis in chemical reactions: literature examples.
- Water clusters in model amorphous systems.

Dr. Shalaev, AAPS Fellow, is a Distinguished Research Fellow in Process Engineering, R&D, Abbvie, Irvine, California, USA. Dr. Shalaev held the Royal Society Fellowship in Pafra Biopreservation and the University of Cambridge, UK, post-doctoral research appointments at the University of Wisconsin-Madison and Cornell University. He also worked at the Institute of Carbon (Russia), Institute of Molecular Biology (Russia), and Pfizer Inc. (USA), before joining Allergan (Irvine, CA). His research interests include the following: amorphous and other disordered solids; phase transitions in aqueous systems during freezing and drying; chemical and physical stability of small molecules and biologicals; development and scale-up of freeze-drying processes. Dr. Shalaev has published over a hundred peer-reviewed papers, book chapters, and patent applications.

TIME: 5:30 PM – SOCIAL HOUR

6:00 PM – DINNER

7:00 PM – MEETING

PLACE: JAMESON'S CHARHOUSE

151 E TOWNLINE RD, VERNON HILLS

COST: \$55.00

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

THE DINNER MEAL CHOICES ARE THE FOLLOWING:

1. DE JONGHE CRUSTED COD – FRESH BAKED PACIFIC COD WITH SIGNATURE SAUCE
2. LEMON PEPPER CHICKEN – SAUTÉED IN WHITE WINE WITH GARLIC SAUCE & SERVED WITH RICE AND VEGETABLES
3. VEGETABLE KABOBS (GREEN PEPPER, ONION, MUSHROOM AND TOMATO) – SERVED WITH RICE (VEGETARIAN)

WHEN REGISTERING, PLEASE INDICATE YOUR SELECTED DINNER MEAL:

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

**MAIL CONFIRMATION WILL BE SENT
CPDG ACCEPTS CASH AND CHECKS (PERSONAL OR COMPANY) ONLY!!!
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://www.aaps.org/aaps/membership-and-community/regions/chicagoland>

Firm Registration Deadline of 12:00 p.m., Tuesday, January 24, 2023

**DIRECTIONS TO THE JANAUARY 26, CPDG MEETING AT JAMESON'S CHARHOUSE
151 E TOWNLINE RD, VERNON HILLS, IL**

- EXIT I-94 AT TOWN LINE RD. (60)
- HEAD WEST ON TOWN LINE ROAD (60) PAST MILWAUKEE AVE (21)
- RESTURANT WILL BE ON THE LEFT-HAND SIDE OF THE ROAD

