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**Presents**

**Seminar series – Drug Delivery and Translational Medicine**

**Photopharmacology:  
Towards Light-Controlled Pharmacological Therapy**

**by**

**Prof. Wiktor Szymanski**

Professor, Chair of Medicinal Chemistry,  
Photopharmacology and Imaging,  
Groningen Research Institute of Pharmacy,  
University of Groningen, The Netherlands



**Date:** 24 May 2024 (Friday)

**Time:** 4:00 p.m. – 5:00 p.m.

**Venue:** Zoom Seminar

Zoom Link: <https://hku.zoom.us/j/96604666379>

Meeting ID: 966 0466 6379

Password: 249124

**Abstract:**

Molecular photomedicine holds the promise for precise treatments, which avoid systemic adverse effects and development of drug resistance. This promise is supported by current medical imaging modalities that are able to reveal the nature and location of malignancies, such as cancer and infections. At the same time, biomedical engineering has recently created methods to deliver light deep into human body. The photomedicine puzzle is currently missing its final piece – the way of translating light into a therapy. To address this challenge, drugs could be introduced whose activity could be reversibly or irreversibly turned on with light. The aim of this presentation is to describe the emerging concept of photopharmacology, which is currently being developed and applied to precisely control the activity of drugs using light. The presentation will focus on our efforts towards bridging light and medicine, focusing first on new light-operated tools (molecular photoswitches and photocages). Next, I will highlight the synergies between medical imaging and therapy, offered by light, through photo-responsive optical and magnetic resonance imaging agents. The examples of light-controlled bioactive molecules presented will include small molecules and proteins. Finally, using those examples, I will highlight the structural aspects of photopharmacology.

**Bio:**

**Professor Wiktor Szymanski** received his PhD degree from The Warsaw University of Technology, Poland, in 2008, working under the supervision of Prof. Ryszard Ostaszewski. He spent two years working on the use of biotransformations in organic chemistry with Prof. Ben L. Feringa and Prof. Dick B. Janssen at the University of Groningen. Since 2010 he has been working on the construction of photoactive protein- peptide- and DNA-bioconjugates and photopharmacology in the Feringa Labs. In 2014, he joined the Medical Imaging Center, University Medical Center Groningen, where he was appointed in 2015 as tenure track assistant professor and in 2019 as associate professor. In 2023, he became a full professor at the Groningen Research Institute of Pharmacy, where he holds the chair of Medicinal Chemistry, Photopharmacology and Imaging.

**Moderator:** Prof. Weiping Wang, Associate Professor, Department of Pharmacology and Pharmacy & Dr. Li Dak-Sum Research Centre, The University of Hong Kong  
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