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**The University of Hong Kong**

**Department of Pharmacology and Pharmacy  
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**Present**

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

**Light-activated drug release from liposome-hydrogel systems**

**by**

**Prof. Timo Laaksonen**

Professor

Pharmaceutical Nanotechnology, Faculty of Pharmacy  
University of Helsinki, Finland

**Date:** 31 October 2025 (Friday)

**Time:** 4:00 p.m. – 5:00 p.m.

**Venue:** Zoom Seminar

Zoom Link: <https://hku.zoom.us/j/94511785848>

Meeting ID: 945 1178 5848

Password: 893407



**Abstract:**

We have developed several approaches based on a combination of light-responsive liposomes and cellulose nanofiber hydrogels to precisely control, sustain, or trigger the release of molecules and nanoparticles commonly used in drug delivery. Inspired by these results, we wanted to know whether liposomes could create “nano-depots” within hydrogels. Liposomes, when appropriately designed, can retain their cargo for extended periods within the gels with virtually no passive drug release. We further studied two active release mechanisms: the photothermal effect and photo-oxidation. When the systems contain an active mechanism, the release can be initiated at any given time by an external signal (i.e., heat or light), a suitable property for example in implant applications.

**Bio:**

**Prof. Timo Laaksonen** is a Professor of Pharmaceutical Nanotechnology at the Faculty of Pharmacy, University of Helsinki since 2019 and a Research Director at Tampere University. He has experience in fundamental physical chemistry, pharmaceutical technology, and the use of various nanomaterials. Recent work has focused especially on nanomaterials, light-activated systems for drug delivery, and sustained drug release formulations based on nanocellulose. Prof. Laaksonen currently holds an ERC Consolidator Grant (PADRE, 2021-2026) and has contributed to over 120 peer-reviewed publications (h-index 45).

**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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Seminar series  
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