

Seminar
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School of Pharmacy

Faculty of Medicine

The Chinese University of Hong Kong



Pharmacy Seminar on

Date : 24 September, 2015 (Thursday)

Time : 3:00p.m. – 4:00p.m.

Venue : G01, G/F, Lo Kwee-Seong Integrated Biomedical Sciences Building, Area 39, The Chinese University of Hong Kong

Abstract

“A New Nano-Gel Carrier for Hydrophobic Drug Delivery”

Presented by

Prof. Allan S. Hoffman

*Professor Emeritus
Department of Bioengineering
University of Washington
Seattle, U.S.A.*

In this talk he will describe a novel, self-assembled and water-dispersible nano-gel (NG) that gradually releases the anti-cancer drug, paclitaxel (PTX), over many hours. Polymer conjugates of PTX and CD are first prepared by mixing the two compounds separately with different copolymers of maleic anhydride, to form degradable ester linkages of PTX or CD to the backbone copolymers. The NG is prepared by mixing aqueous dispersions of the polymer-PTX conjugates (pPTX) and the polymer-cyclodextrin (pCD) conjugates, which self-assemble into NG particles around 50nm in diameter. The formation of inclusion complexes between the CD and the PTX molecules is the key for both the self-assembling nature of the NGs and their stability in water. The PTX-releasing NG was shown to be effective against several cancer cell lines. This research provides an intelligent strategy for preparing an injectable, efficient anticancer drug delivery system for small hydrophobic drugs.

Biosketch

Professor Hoffman studied at M.I.T., where he received B.S., M.S., and Sc.D. degrees in Chemical Engineering between 1949 and 1957. He taught on the faculty of the M.I.T. Chemical Engineering Department for a total of ten years. Since 1970 he has been Professor of Bioengineering at the University of Washington (UW) in Seattle; he is currently Prof. Emeritus at UW. He continues to actively teach in short courses in the US and internationally, and to advise on research in the areas of smart polymers and hydrogels, controlled drug delivery, separations, and biomaterial surface modification.



Some of his professional activities, recognitions and awards have included: President, Society for Biomaterials (1983-1984); Biomaterials Science Prize, Japanese Biomaterials Society (1990); Founder's Award of the Society for Biomaterials (2000); Chandra Sharma Award, Biomaterials Society of India (2003); Elected to the US National Academy of Engineering (2005); International Recognition Award, Society for Polymer Science, Japan (2006); Founder's Award of the Controlled Release Society (2007).

Professor Hoffman currently lectures each year in short courses on a) Controlled Drug Delivery, at Korea Univ/KIST in Seoul, Korea, b) Biomaterials and Drug Delivery, at iNANO, Aarhus Univ, Aarhus, Denmark c) Surface Principles and Contact Angles, at UW NESAC-BIO Surface Analysis Center, UW, Seattle and d) Controlled Drug Delivery, UWEB, Bioeng. Dept, UW, Seattle.

Some of his colleagues have organized international symposia in Maui, Hawaii to celebrate his 60th (1992), 70th (2002), and 80th (2012) birthdays. Some of Allan's former students in Japan, Korea, China and Taiwan have also organized "Hoffman Family" Symposia (HFS) and the first was held at the National Institute of Materials Science (NIMS) in Tsukuba, Japan in 2010. A second HFS was held in Tsukuba in 2014, and a third HFS was held in March, 2015 at Chonnam National University, Gwangju, Korea. Current planning is for a fourth HFS in Taiwan in 2016.