DISTINGUISHED LECTURE in BIOLOGICAL ENGINEERING

“Advances in Intelligent Hydrogels for Recognitive and Protein Delivery Systems”

Thursday – July 4, 2013 – 11:45 a.m.
EPFL – room SV 1717a

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host: Prof. J.A. Hubbell

Abstract
Engineering the molecular design of intelligent hydrogels by controlling recognition and specificity is the first step in coordinating and duplicating complex biological and physiological processes. We address design and synthesis characteristics of novel cross-linked networks capable of protein release as well as artificial molecular structures capable of specific molecular recognition of biological molecules. Recent developments in protein delivery have been directed towards the preparation of targeted formulations for protein delivery to specific sites, use of environmentally-responsive polymers to achieve pH- or temperature-triggered delivery, usually in modulated mode, and improvement of the behavior of their mucoadhesive behavior and cell recognition. Molecular imprinting and micro imprinting techniques, which create stereo-specific three-dimensional binding cavities based on a biological compound of interest, can lead to preparation of biomimetic materials for intelligent drug delivery, drug targeting, and tissue engineering. We have been successful in synthesizing novel glucose- and protein-binding polymers based on non-covalent directed interactions formed via molecular imprinting techniques within aqueous media.

➡ Sandwiches will be provided

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