Pritzker Institute of Biomedical Science and Engineering
Along with
The Department of Biomedical Engineering
PRESENTS

Robert A. Pritzker Distinguished Lecturer

Nicholas A. Peppas, Sc.D.

Cockrell Family Regents Chair in Engineering #6
Professor of Biomedical Engineering, Chemical Engineering and Pharmacy
Director, Institute for Biomaterials, Drug Delivery and Regenerative Medicine
The University of Texas at Austin

Friday, February 19, 2016
1:50 pm – Wishnick Hall 113
Reception to follow

"Intelligent Nanoscale Biopolymers for Recognitive and Responsive Delivery of Drugs, Peptides and Proteins"

Engineering the molecular design of intelligent biopolymers and especially 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 nover crosslinked 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 microimprinting 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-binding molecules based on non-covalent directed interactions formed via molecular imprinting techniques within aqueous media.

This event is free and open to the IIT Community