

Eugene W. Skinner and Eugene P. Lautenschlager Memorial Lecture

Intelligent Biomaterials for Protein Delivery, Molecular Imprinting and Recognitive Medical Devices**Nicholas A. Peppas**

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Engineering the molecular design of intelligent biomaterials 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 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.

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**Thursday, February 10 at 3:30 p.m., Tech L211
Reception to Follow**