CHAPTER 9

Micro- and Nano-Structured Biomimetics by Molecular Imprinting

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Summary

Molecular imprinting is a generic method for preparation of tailor-made affinity materials with high molecular recognition selectivity. The molecular imprinting process utilizes template directed self-assembly of building blocks to produce imprinted sites in cross-linked organic or inorganic polymers. In a sense, it is a bottom-up approach towards fabrication of nanocavities mimicking biological recognition materials (biomimetics), which are attracting great interest for applications in bioseparation, sensing, catalysis, and controlled drug delivery systems. Over the years, molecular imprinting technique has been developed to offer well controlled biomimetic materials in the micro- and nano-regime, enabling new and multiple functions to be realized. These developments will open exciting new opportunities for imprinted biomimetics in biomedical applications.

KEYWORDS: molecular imprinting, molecular recognition, biomimetics, nanoparticles, electrospinning

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