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Soggetti	Materials Bionics Polymers Biomaterials Chemistry Computer simulation Molecular probes Bioinspired Materials Biomedical Materials Computational Design Of Materials Biological Sensors and Probes
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Nota di contenuto	An introduction to molecular imprinting technology and molecularly imprinted polymers -- Affinity materials: from natural recognition elements to synthetic counterparts -- Comparison of MIP-based diagnostics technologies with antibody and aptamer-based diagnostics -- Synthesis techniques in molecular imprinting: from MIP monoliths to MIP films and nanoparticles -- Advanced computational approaches in molecular imprinting: Modelling templates and in-silico design of MIPs -- Electrochemically synthesized MIPs for sensor applications in healthcare diagnostics -- MIP-based thermal sensors: from medical diagnostics to food safety -- Recent trends in MIP-based virus sensors -- Contribution of smart nanomaterials into molecular imprinting:

Functionalization of MIPs using carbon based nanomaterials, quantum dots, and nanoparticles -- Advanced imprinted materials for in-vitro and in-vivo applications -- Molecularly imprinted photocatalysts and their applications -- Molecularly imprinted catalysts and their applications -- MIPs as versatile tools in sample preparation -- Applications of MIPs in separation research: from solid phase extraction to selective membrane filters -- Existing and future commercial opportunities of molecularly imprinted polymers.

Sommario/riassunto

This book provides an overview of the latest technology and advances in the field of molecularly imprinted polymers (MIPs) and their diverse applications in healthcare diagnostics, food safety and quality, as well as environmental monitoring. Divided into 3 parts, the book offers an introduction to the basics of molecular imprinting and affinity materials, followed by an outline of the main sensor applications and the contribution of smart nanomaterials to molecular imprinting. The last part of the book compares MIP-based diagnostics technologies with antibody- and aptamer-based diagnostics, and discusses existing and further commercial opportunities for MIPs. Through this book, readers will get a wide range of information from basics to advanced applications in the molecular imprinting area and discover the impact of integrated approaches such as computational studies and nanotechnology on the development of imprinting techniques for biotechnological applications covering healthcare, environmental and food safety research. With its rich content, the book is a unique contribution to the field and it holds great potential to be a reference work not only for researchers working in the field but also for the researchers who plan to design collaborative research projects to contribute to their particular field (e.g., medical scientists, medical doctors, agricultural or food engineers).
