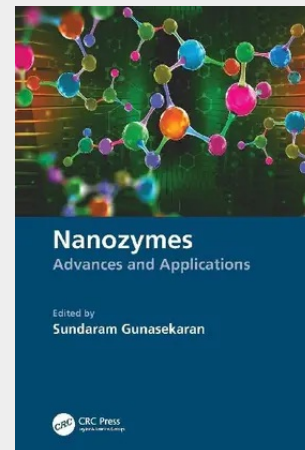


Nanozymes

Advances and Applications

This book presents the state-of-the-art advances and applications of nanozymes, the recently developing branch of enzymology that synthesizes and uses nanomaterials that mimic the function of traditional enzymes. During the past decade, the study of nanozymes has grown rapidly. Several new nanomaterials that exhibit enzymatic actions have been identified, along with new applications for their practical use. This book draws upon the work of experts from around the world and provides an in-depth analysis and cutting-edge overview of nanozymes, with an eye toward their present and future applications. Chapters are arranged in a logical order to provide physio-chemical characterization of nanozyme and basic mechanisms of their enzymatic actions. Focusing on current limitations of nanozymes and their reaction kinetics, the book presents a comprehensive discourse on nanozyme engineering that includes possible surface modifications to enhance nanozyme effectiveness. It also focuses on traditional and novel nanozyme applications, such as biosensing, drug delivery, and disease therapy, as well as their use as antibacterials. An important addition in this book is the summary of emerging literature on nanozyme toxicology. This book is intended as a ready reference for advanced undergraduate and graduate students doing research in nanotechnology; materials science; chemistry; and chemical, biological, biomedical, and food engineering. Research and development scientists, engineers, and technologists working in the chemical and biological/biomedical industries will gain much from the materials in this book for their industry practice. - Presents a comprehensive discourse on nanozyme engineering that includes possible surface modifications to enhance nanozyme effectiveness. - Discusses metal organic frameworks as nanozymes. - Reviews on traditional and novel nanozyme applications, such as biosensing, drug delivery, disease therapy, and their use as antibacterials. - Examines nanozyme toxicology. Dr. Sundaram Gunasekaran is a Professor in the Department of Biological Systems Engineering at the University of Wisconsin–Madison.

This book presents an up-to-date account of the emerging field of nanozymes. These nanomaterials function as enzymes to provide novel functionalities and rival that of traditional enzymes. The book focus on issues relating to the preparation and use of nanozymes and their attendant issues and the paths to overcome.



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