

Nano-Biotechnology for Biomedical and Diagnostic Research

Advances in Experimental Medicine and Biology

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Preface

The new volume in the Advances in Experimental Medicine and Biology entitled: “*Nano Biotechnology for Biomedical and Diagnostics Research*” will address the novel application of nanotechnology and nano-materials in biological research, diagnostics and therapeutics. Specifically the book will address research aspects related to nanomaterial in imaging and biological research, nano materials as a bio-sensing tool, oligonucleotides and biopolymer as nano building blocks, nano materials for drug delivery, medicinal and therapeutic application and cyto-toxicity of nano-materials. All of the chapters in this book were presented during the **47th Oholo conference** entitled: ***Novel Approaches in Nano Bio-Technology for Biomedical and Diagnostics Research***, which took place in Eilat, Israel in December 2010.

The manuscripts in the book intend to present specifically biological, diagnostic and medical problems with their potential solution by nano technology or materials. For example in the diagnostics and imaging field the will discuss the contribution of q-dots as imaging tools, fluorescent labels, their application as donor in FRET pair and more. Gold nanoparticles will be presented as SERS and electrochemical enhancers.

In the therapeutic field the book will present the potential of using smart nanoparticles in air liposomes with the combination of acoustic wave in various possible treatments.

The subject of forming functional nano structures from biological building block, mainly oligonucleotides will present. This will be shown as building block for molecular machines, functional networks or unique origami structures.

In these subjects this volume is expanding the possible application of nanotechnology in the major field of medicine and biology. In this respect this book is unique, since it would arise from the biological problems to the nano technology possible solution and not vice versa.

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