Immunological and Biotechnological
Approach to Human Health Care

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Immunological *and* Biotechnological

Approach to Human Health Care

Edited by
Sunita Verma

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Immunological and Biotechnological
Approach to Human Health Care

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Message



It gives me immense pleasure to extend my heartfelt wishes to the college family for taking a consummate initiative to ameliorate the multidimensional progress of society by publishing the book on the topic *"Immunological and Biotechnological approach to human health care"*. This book is sincere Endeavour to provide gist of current and relevant information on various aspects of Recent Advances in Immunological and Biotechnological approaches to human health care. The advancement in the field of Biotechnology is surely one of the greatest organized creative activities of humankind today. The material world that we see around us, and the way society functions today are direct manifestations of these advances.

In the area of health, two of the great promises are immuno-diagnosis and immuno-prophylaxis. The first would enable detection of many diseases very early, making treatment specific and less expensive. The eradication of smallpox, reduction in polio, and protection against many childhood diseases are examples of the power of immuno-prophylaxis. However, there is so much more that can be done. All we need is to plan and organize in a way so as to be able to harness our intelligentsia in the right direction by providing right opportunities.

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I sincerely hope that this book would provide up to date comprehensive overview of the latest technological innovations in the field of Biotechnology and Immunology.

I congratulate Zoology Department that worked with zeal and vigor to get this book published and wish them success in future too.

Mrs. Ratna Sharma
(Principal)
SDAM College, Dinanagar

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Editorial



Immunology & Biotechnology have their applications in health care through various techniques i.e. Disease prevention, Disease detection and Correction of genetic diseases. *Flowcytometry* is also a contribution of biotechnology, which is routinely used in the diagnosis of health disorders, especially blood cancers, but has many other applications in basic research, clinical practice and clinical trials. Flow cytometry is a laser- or impedance-based, biophysical technology employed in cell counting, cell sorting, biomarker detection and protein engineering, by suspending cells in a stream of fluid and passing them by an electronic detection apparatus. It allows simultaneous multiparametric analysis of the physical and chemical characteristics of up to thousands of particles per second.

The technology has applications in a number of fields, including molecular biology, pathology, immunology, plant biology and marine biology. It has broad application in medicine (especially in transplantation, hematology, tumor immunology and chemotherapy, prenatal diagnosis, genetics and sperm sorting for sex preselection). Also, it is extensively used in research for the detection of DNA damage, caspase cleavage and apoptosis.

Another contribution of biotechnology is *Hybridoma technology* which is a method for producing large numbers of identical antibodies (also called monoclonal antibodies) The use of

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monoclonal antibodies is numerous and includes the prevention, diagnosis, and treatment of disease. For example, monoclonal antibodies can distinguish subsets of B cells and T cells, which is helpful in identifying different types of leukaemias. *Gene therapy* is an another contribution of biotechnology which is an experimental technique that uses genes to treat or prevent disease. In the future, this technique may allow doctors to treat a disorder by inserting a gene into a patient's cells instead of using drugs or surgery.

On the topic of Immunological and Biotechnological approach to Human health care we have collected articles and research papers from students, teachers, professors and scholars. The editorial board acknowledges the help, suggestions and guidance. Our special thanks go to article/ research paper writer and publisher.

Acknowledging contribution made by everyone who has helped me in the preparation of this book is most auspicious for me. I express my sincere and whole hearted thanks to the Patron of our organizing committee Swami Sadanand Ji, President, College Managing Committee. His continuous guidance helped us with his immense experience, knowledge and ability to perform our work with ease.

At an outset, I would like to express my profound regard, deep sense of gratitude and whole hearted thanks to Mrs. Ratna Sharma most esteemed and worthiest principal, SDAM, College Dinanagar for her ever available guidance, invaluable moral support and constant encouragement.

Mrs. Sunita Verma

Chief Editor

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