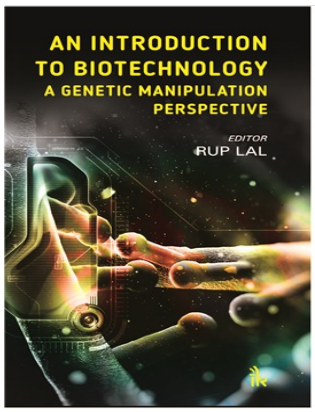
Book Information Sheet



An Introduction to Biotechnology: A Genetic Manipulation Perspective

Rup Lal

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About the Book

An Introduction to Biotechnology: A Genetic Manipulation Perspective contains practical exercises, and has a comprehensive coverage on the subjects of biotechnology and gene manipulation for the students' understanding of the basic concepts. This manual contains, in particular, the techniques, protocols and practical approaches that are being used routinely in molecular biology laboratories.

This book is assembled together with an aim to enlighten the readers with the complex molecular biology protocols in a simple and straightforward manner. In addition, this manual also introduces readers to the study of gene manipulation in Gram-negative as well as Gram-positive bacteria. All these methods and protocols have been regularly used in the editor's laboratory and have been modified from time to time. This practical handbook overcomes the limitations of other manuals by providing an in-depth methodology in a systematic way, blending the underlying theoretical aspects, thus facilitating the readers in understanding the reason behind every step followed during the experimental work.

Salient Features

- Is a unique combination of protocols that are specially designed for undergraduate and postgraduate students and for those who are perusing research and teaching in Biotechnology, Molecular Biology, Botany, Zoology, Life Sciences and Microbiology.
- Contains primary protocols for nucleic acid isolation, protein isolation, restriction digestion, ligation, cloning, transformation, Southern hybridization and sequencing.
- Every chapter is well-structured and is divided into various sections: Introduction, Learning objectives, Requirements, Theoretical aspects, Procedure, Results, Discussion, Frequently asked questions and References.

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DNA Blot Hybridization
DNA Sequencing

About the Author

Rup Lal :- Ph.D. from University of Delhi, 1980, is a Professor of Molecular Biology at the Department of Zoology, University of Delhi, and is also the Dean (Examination) at the same university. His primary research interests include elucidating microbial diversity using culture dependent and culture independent (metagenomics) approaches from stressed environments. He has characterized nearly 40 bacterial species, 12 bacterial genomes and three metagenomes from stressed niches. Apart from this, his group has explored the genetics and biochemistry of hexachlorocyclohexane (HCH) degradation, especially using sphingomonads isolated from the HCH dump site. He also has a US patent to his credit for the development of first effective series of cloning vectors for different rifamycin-producing actinobacteria, especially *Amycolatopsis mediterranei*.

He has over 180 publications in peer reviewed journals attracting over 3546 ISI citations along with h-index 31. He was awarded the Alexander von Humboldt Fellowship, DBT Overseas Fellowship, Indo-US Professorship, and was a visiting scientist at the University of Cambridge. He was Editor-in Chief from 2007 to 2013 and now the Editor of the Indian Journal of Microbiology (INJM). He is currently the Editor-in-chief of Applied Journal of Microbial Bionomics and Editor of mSystems. He is also Associate Editor of BMC Biotechnology and BMC Biochemistry, Editorial Board member of OA- Nano-Bio-Technology, Microbial Biotechnology, Journal of Bioscience and Bioengineering, Environmental Microbiology and Environmental Microbiology Reports. He has served as the Ambassador, American Society for Microbiology for the Indian Ocean Region from 2012-2015. He was the President of the Association of Microbiologists of India (2013) and is the General Secretary of Indian Network for Soil Contamination & Research (INSCR). He is also a member of the review committee for the ASM-IUSSTF Indo-US Professorship in Microbiology. He is the Fellow of Indian Academy of Sciences, New Delhi (FNA), Fellow of National Academy of Sciences, India (FNASc), Fellow of National Academy of Agricultural Sciences (FNAAS) and the Fellow of Association of Microbiologists of India (FAMI).