

Genetic Engineering Smita Rastogi

Designed to serve as a textbook for students of biotechnology, life sciences, genetics, microbiology, biochemistry, and other related areas.

Introduction to Glycobiology reveals the true impact of the sugars on biological systems, explaining their function at the molecular, cellular, and organismal level and their clinical relevance.

Drawing on expert interviews, original research, and personal storytelling, Digital Health explores the theory, science, and applications behind the uses of emerging digital technologies in healthcare.

Today’s synthetic biologists are in the early stages of engineering living cells to help treat diseases, sense toxic compounds in the environment, and produce valuable drugs. With this manual, you can be part of it. Based on the BioBuilder curriculum, this valuable book provides open-access, modular, hands-on lessons in synthetic biology for secondary and post-secondary classrooms and laboratories. It also serves as an introduction to the field for science and engineering enthusiasts. Developed at MIT in collaboration with award-winning high school teachers, BioBuilder teaches the foundational ideas of the emerging synthetic biology field, as well as key aspects of biological engineering that researchers are exploring in labs throughout the world. These lessons will empower teachers and students to explore and be part of solving persistent real-world challenges. Learn the fundamentals of biodesign and DNA engineering Explore important ethical issues raised by examples of synthetic biology Investigate the BioBuilder labs that probe the design-build-test cycle Test synthetic living systems designed and built by engineers Measure several variants of an enzyme-generating genetic circuit Model "bacterial photography" that changes a strain’s light sensitivity Build living systems to produce purple or green pigment

Optimize baker’s yeast to produce β -carotene

Applied Genetics of Leguminosae Biotechnology

Removal of Emerging Contaminants Through Microbial Processes

Understanding the Benefit-risk Patient-provider Framework

The Bacteriophages

The Silken Thread

The Very Short Fiction of John Scalzi

Published by Sinauer Associates, an imprint of Oxford University Press. Extensively rewritten and reorganized, this new edition of Evolution—featuring a new coauthor: Mark Kirkpatrick (The University of Texas at Austin)—offers additional expertise in evolutionary genetics and genomics, the fastest-developing area of evolutionary biology. Directed toward an undergraduate audience, the text emphasizes the interplay between theory and empirical tests of hypotheses, thus acquainting students with the process of science. It addresses major themes—includingthe history of evolution, evolutionary processes, adaptation, and evolution as an explanatory framework—at levels of biological organization ranging from genomes to ecological communities.

Examines the origins of life on Earth and the search for extraterrestrial life, through an understanding of the factors that have allowed life to exist on this planet and the commonalities on others that may enable life elsewhere.

Robert Arking’s Biology of Aging is an introductory text to the biology of aging which gives advanced undergraduate and graduate students a thorough review of the entire field. The mass of data related to aging is summarized into fifteen focused chapters, each dealing with some particular aspect of the problem. His prior two editions have also served admirably as a reference text for clinicians and scientists. This new edition captures the extraordinary recent advances in our knowledge of the ultimate and proximal mechanisms underlying the phenomenon of aging.

In recent decades we have come to realize that the microbial world is hugely diverse, and can be found in the most extreme environments. Fungi, single-celled protists, bacteria, archaea, and the vast array of viruses and sub-viral particles far outnumber plants and animals. Microbes, we now know, play a critical role in ecosystems, in the chemistry of atmosphere and oceans, and within our bodies. The field of microbiology, armed with new techniques from molecular biology, is now one of the most vibrant in the life sciences. In this Very Short Introduction Nicholas P. Money explores not only the traditional methods of microscopy and laboratory culture but also the modern techniques of genetic detection and DNA sequencing, genomic analysis, and genetic manipulation. In turn he demonstrates how advances in microbiology have had a tremendous impact on the areas of medicine, agriculture, and biotechnology. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Digital Health

BioBuilder

Microbiology: A Very Short Introduction

An Introduction to Ecological Genomics

Evolutionary Computing and Mobile Sustainable Networks

An Oral History of Haden’s Syndrome

Searching for a Mechanism traces the history of cell bioenergetics from the early notions of science in the Enlightenment through to the end of the twentieth century. Author John N. Prebble's treatment of this history falls into five periods, from the 1600's to the present day. The "bioenergetics revolution" has long been overlooked because it occurred simultaneously as the other major biological revolution of the twentieth century; the development of molecular biology. This book aims to provide the first thorough history of bioenergetics. The story of cell bioenergetics is primarily concerned with the synthesis of ATP (adenosine triphosphate), sometimes referred to as the energy currency of the cell. In fact the term 'bioenergetics' was probably not introduced into the field until Albert Szent-Gyorgyi published a small book under that title in 1957. Despite the twentieth century focus of the subject matter, the history of this field commences with the work of those in the seventeenth century who sought to understand the process of breathing and passes through metabolic biochemistry concluding with the elucidation of the molecular mechanisms of key enzymes in bioenergetics. Although the story of metabolic biochemistry (which is often taken to include bioenergetics) essentially belongs to the twentieth century, progress in this area cannot be understood without recourse to previous centuries. Thus from the seventeenth century onwards it is possible to trace a path of early thinking which eventually laid the ground work for the dramatic success of twentieth century studies.

Soil salinity is a key abiotic-stress and poses serious threats to crop yields and quality of produce. Owing to the underlying complexity, conventional breeding programs have met with limited success. Even genetic engineering approaches, via transferring/overexpressing a single ‘direct action gene’ per event did not yield optimal results. Nevertheless, the biotechnological advents in last decade coupled with the availability of genomic sequences of major crops and model plants have opened new vistas for understanding salinity-responses and improving salinity tolerance in important glycopyhtic crops. Our goal is to summarize these findings for those who wish to understand and target the molecular mechanisms for producing salt-tolerant and high-yielding crops. Through this 2-volume book series, we critically assess the potential venues for imparting salt stress tolerance to major crops in the post-genomic era. Accordingly, perspectives on improving crop salinity tolerance by targeting the sensory, ion-transport and signaling mechanisms are presented here in volume 1. Volume 2 will focus on the potency of post-genomic era tools that include RNAi, genomic intervention, genome editing and systems biology approaches for producing salt tolerant crops.

Microbial ecology is the study of interactions among microbes in natural environments and their roles in biogeochemical cycles, food web dynamics, and the evolution of life. Microbes are the most numerous organisms in the biosphere and mediate many critical reactions in elemental cycles and biogeochemical reactions. Because microbes are essential players in the carbon cycle and related processes, microbial ecology is a vital science for understanding the role of the biosphere in global warming and the response of natural ecosystems to climate change. This novel textbook discusses the major processes carried out by viruses, bacteria, fungi, protozoa and other protists - the microbes - in freshwater, marine, and terrestrial ecosystems. It focuses on biogeochemical processes, starting with primary production and the initial fixation of carbon into cellular biomass, before exploring how that carbon is degraded in both oxygen-rich (oxic) and oxygen-deficient (anoxic) environments. These biogeochemical processes are affected by ecological interactions, including competition for limiting nutrients, viral lysis, and predation by various protists in soils and aquatic habitats. The book neatly connects processes occurring at the micron scale to events happening at the global scale, including the carbon cycle and its connection to climate change issues. A final chapter is devoted to symbiosis and other relationships between microbes and larger organisms. Microbes have huge impacts not only on biogeochemical cycles, but also on the ecology and evolution of more complex forms of life, including Homo sapiens..

Using political ecology and environmental history to explore the Green Revolution's emergence in the United States, Mexico, India and Britain, this book argues that the national security planning efforts of each nation were the most important forces promoting this revolution.

Proceedings of ICECMSN 2020

Miniatures

Processes in Microbial Ecology

Polymeric Materials

Evolution

A History of Cell Bioenergetics

It has been 10 years since Plenum included a series of reviews on bacte riophages, in Comprehensive Virology. Chapters in that series contained physical-genetic maps but very little DNA sequence information. Now the complete DNA sequence is known for some phages, and the se quences for others will soon follow. During the past 10 years two phages have come into common use as reagents: A phage for cloning single copies of genes, and M13 for cloning and DNA sequencing by the dideoxy termi nation method. Also during that period the use of alternative sigma fac tors by RNA polymerase has become established for SPO1 and T4. This seems to be a widely used mechanism in bacteria, since it has been implicated in sporulation, heat shock response, and regulation of nitro gen metabolism. The control of transcription by the binding of A phage CII protein to the -35 region of the promoter is a recent finding, and it is not known how widespread this mechanism may be. This rapid progress made me eager to solicit a new series of reviews. These contributions are of two types. Each of the first type deals with an issue that is exemplified by many kinds of phages; chapters of this type should be useful in teaching advanced courses. Chapters of the second type provide comprehensive pictures of individual phage families and should provide valuable information for use in planning experiments.

Discover the history of Haden’s Syndrome, the virus that created the world of John Scalzi’s inventive near-future thrillers Lock In and Head On, in the prequel novella Unlocked. Not long from now, a virus will sweep the globe. Most will suffer no worse than flu-like symptoms, but an unlucky one percent will be changed forever. Hundreds of millions become "locked in", awake, aware, but completely unable to control their bodies. This is the story of the doctors, scientists, engineers, politicians, and heroes who remade the world. It is the story of the chaotic outbreak, the fight for a cure, the changes that followed. It is an oral history, straight from the mouths of those who survived the most dynamic period in human history. At the Publisher’s request, this title is being sold without Digital Rights Management Software (DRM) applied.

Insects are seldom mentioned in discussions surrounding human history, yet they have dramatically impacted today’s societies. This book places them front and center, offering a multidisciplinary view of their significance. Diseases vectored by insects have killed more people than all weapons of war. Fleas are common pests, but some can transmit illnesses such as the bubonic plague. In fact, three pandemics can be traced back to them. Epidemics of typhus have been caused by lice. Conversely, humans have also benefitted from insects for millennia. Silk comes from silkworms and honey comes from bees. Despite the undeniably powerful effects of insects on humans, their stories are typically left out of our history books. In The Silken Thread, entomologists Robert. N. Wiedenmann and J. Ray Fisher link the history of insects to the history of empires, cultural exchanges, and warfare. The book narrows its focus to just five insects: a moth, a flea, a louse, a mosquito, and a bee. The authors explore the impact of these insects throughout time and the common threads connecting them. Using biology to complement history, they showcase these small creatures in a whole new light. On every page, the authors thoughtfully analyze the links between history and entomology. The book begins with silkworms, which have been farmed for centuries. It then moves to fleas and their involvement in the spread of the plague before introducing the role lice played in the Black Death, wars, and immigration. The following section concerns yellow fever mosquitos, emphasizing the effects of yellow fever in the Americas and the connection to sugar and slavery. After discussing the importance of western honey bees, the authors tie these five insects together in an exciting closing chapter.

Biotechnology is a rapidly growing research area which is immediately translated into industrial applications. Although over 1000 research papers have emerged on various aspects of red beet and the chemistry of betalaines pigments, surprisingly no comprehensive book is available. The proposed Red Beet book encompasses a scholarly compilation of recent biotechnological research developments made in basic science, biochemistry of the chief components, technological developments in augmenting and recovery of such useful compounds and value-added products with discussions on future perspectives. The book will provide detailed information of the chemistry of the main components of normal and genetically engineered beetroot.

The Cunning of Rights

Surfaces, Interfaces and Bioapplications

Searching for a Mechanism

Food and Pharmaceutical Applications

Astrobiology: A Very Short Introduction

Odysseys in the Pursuit of Enlightenment

Published by Sinauer Associates, an imprint of Oxford University Press.

As newer forms of intellectual propertyseeds, germplasm, genetic resources, plant varietiesmaterialize through advancements in biotechnology, a variety of entitlements, claims, and imaginations of citizenship are bred, mimicking the hybrid culture of genetic configurations. This book analyses the theoretical and philosophical frames of new (biotic) property, and assesses how its altered metaphysics inscribes itself in the politics of genetic resources. It probes how rights get framed within and by law, in the diverse yet closely interrelated aspects of social, cultural, and biological life. In particular, the book focuses on biocultural entitlements of farming and indigenous communitiespeople who are at a distance from the global networks of trade, politics, science, and technology. It explores the terms on which the interests of these indigenous communities are included and institutionalized as well as the degrees of exclusion and stratification that accompany them. It attempts to uncover the cunning or duplicitous nature of these rightsthe chasm between their intended benefits and their actual outcomes.

Saha (fermentation biotechnology research, U.S. Department of Agriculture) presents a compilation of seven papers from an August 2002 American Chemical Society symposium and eight solicited manuscripts, all covering advances in fermentation biotechnology research. The papers are organized into sections covering production of specialty chemicals, production of pharmaceuticals, environmental bioremediation, metabolic engineering, and process validation. Distributed by Oxford U. Press. Annotation : 2004 Book News, Inc., Portland, OR (booknews.com)

Providing a practical, comprehensive and up-to-date overview of the use of spatial statistics in epidemiology, this book examines spatial analytical methods in conjunction with GIS and remotely sensed data to provide insights into the patterns and processes that underlie disease transmission.

Wheat, Genes, and the Cold War

Sentiment Analysis and Opinion Mining

Fermentation Biotechnology

The Physiology and Biochemistry of Prokaryotes

Salinity Responses and Tolerance in Plants, Volume 1

Red Beet Biotechnology

Describes the science of cheese making, from chemistry to biology, in a lively way that is readable for both the food scientist and the artisanal hobbyist.

This book takes the reader on an enchanting journey into the lives of fourteen genius scientists who lived during the enlightenment period to the mid-twentieth century. They suffered ethnic, gender, sexual prejudices, cultural and religious taboos, poverty, and epidemics. Most lived a very short life. And yet, their intuition and perseverance prevailed, and their pioneering discoveries changed the world. Their tragic lives faded away over time. However, the fruits of their work, including computer and nuclear technologies, space science, artificial intelligence, and genetic engineering, have shaped our lives. When we look back, their inspirational life stories appear more fictional than real. Each story takes the reader into varying times, places, customs, and environments. The book should interest not only a science nerd but also an armchair reader who loves fiction.

The author presents a basic introduction to the world of genetic engineering. Copyright © Libri GmbH. All rights reserved.

Plant Biotechnology presents a balanced, objective exploration of the technology behind genetic manipulation, and its application to the growth and cultivation of plants. The book describes the techniques underpinning genetic manipulation and makes extensive use of case studies to illustrate how this influential tool is used in practice.

The Science of Cheese

Basic Cell Culture
New Frontiers in Stress Management for Durable Agriculture
Plant Cell Culture
A Practical Approach
Targeting Sensory, Transport and Signaling Mechanisms

Using accessible farming practices to meet the growing demands on agriculture is likely to result in more intense competition for natural resources, increased greenhouse gas emissions, and further deforestation and land degradation, which will in turn produce additional stress in the soil-water-plant-animal continuum. Stress refers to any unfavorable force or condition that inhibits customary functioning in plants. Concurrent manifestations of different stresses (biotic and abiotic) are very frequent in the environment of plants, which consequently reduces yield. Better understanding stress not only changes our perspective on the current environment, but can also bring a wealth of benefits, like improving sustainable agriculture and human beings' living standards. Innovative systems are called for that protect and enhance the natural resource base, while increasing productivity via 'holistic' approaches, such as agroecology, agro-forestry, climate-smart agriculture and conservation agriculture, which also incorporate indigenous and traditional knowledge. The book 'New Frontiers in Stress Management for Durable Agriculture' details the current state of knowledge and highlights scientific advances concerning novel aspects of plant biology research on stress, biotic and abiotic stress responses, as well as emergent amelioration and reclamation technologies to restore normal functioning in agroecology.

Plant cell culture techniques are increasingly used in basic research and for plant exploitation in industry (genetic engineering, micropropagation). This monograph describes the biotechnological techniques used in laboratories for isolating and manipulat

This book features selected research papers presented at the International Conference on Evolutionary Computing and Mobile Sustainable Networks (ICECMSN 2020), held at the Sir M. Visvesvaraya Institute of Technology on 20–21 February 2020. Discussing advances in evolutionary computing technologies, including swarm intelligence algorithms and other evolutionary algorithm paradigms which are emerging as widely accepted descriptors for mobile sustainable networks virtualization, optimization and automation, this book is a valuable resource for researchers in the field of evolutionary computing and mobile sustainable networks.

The abundance of organic pollutants found in wastewater affect urban surface waters. Traditional wastewater management technologies focus on the removal of suspended solids, nutrients and bacteria, however, new pollutants such as synthetic or naturally occurring chemicals are often not monitored in the environment despite having the potential to enter the environment and cause adverse ecological and human health effects. Collectively referred to as "emerging contaminants," they are mostly derived from domestic activities and occur in trace concentrations ranging from pico to micrograms per liter. Environmental contaminants are resistant to conventional wastewater treatment processes and most of them remain unaffected, causing contamination of receiving water. This in turn leads to the need for advanced wastewater treatment processes capable of removing environmental contaminants to ensure safe fresh water sources. This book provides an up-to-date overview of the current bioremediation strategies, including their limitations, challenges and their potential application to remove environmental pollutants. It also introduces the latest trends and advances in environmental bioremediation, and presents the state-of-the-art in biological and chemical wastewater treatment processes. As such, it will appeal to researchers and policy-makers, as well as undergraduate and graduate environmental sciences students.

Struggles of Unsung Scientists Who Enlightened the World

Genetic Engineering

Synthetic Biology in the Lab

Plant Biotechnology

Environmental Biotechnology

Biology of Aging

Describes a range of topics of interest to microbiologists, these include the structure, physiology, and biochemistry of bacteria, as well as cell-cell signaling, microbial development, and biofilm formation. The notes at the end of each chapter provide information on the topics discussed in the chapter.

"If you're mystified by DNA and genetics, relax. Settle into a comfy chair as we explain what DNA is and how it works its apparent magic, revealing it's not so magical after all. We'll also cover chromosomes, genes and genomics, and how they impact our daily lives. These initial pages provide a quick overview of some common questions folks have about DNA: what it is, what you should know about it, where it comes from. If it seems like we're glossing over your favorite topic, be patient, as we'll explore these and many other topics in greater depth in the subsequent chapters. For now, settle in! It's time to unpack some mysteries and explode some myths, while still marveling at the awesome star power of DNA. Like all celebrities, DNA carries a mystique, a compelling story combining remarkable skills with some manufactured hype. 'It's in our DNA' is now a standard refrain for marketers and individuals trumpeting some essential virtue: honesty, courage, integrity, permanence, the spirit of discovery¹. The aura of DNA sells everything from colleges and companies to cars, electric fences, and even literary agents. The marketing hype is often misplaced, but DNA is undoubtedly a wondrous molecule. It's the only known molecule capable of reproducing itself, and is present in all living things. DNA is, indeed, the essence of life itself. Between the Presidential citations, popular television shows such as CSI (Crime Scene Investigation) and a multitude of gratuitous marketing clichés, almost everyone knows "DNA". Or, at least, they think they know about DeoxyriboNucleic Acid, aka "DNA". The New York Times index shows over 500 news articles on DNA in the first half of 2019 alone, an average of over two stories per day.² Yet many otherwise well-informed readers don't know what DNA is or how it works."³--

Environmental Biotechnology provides a broad overview of the subject, focusing on how biotechnological techniques are applied to solve environmental problems, rather than giving detailed explanations of the techniques themselves. Capturing the current excitement in a field reinvigorated by advances in genetic manipulation, and emerging genomic and proteomic technologies, Environmental Biotechnology is the perfect resource for any student needing to develop a sound understanding of biotechnology, and the diverse ways it can be applied to address important environmental issues.

Sentiment analysis and opinion mining is the field of study that analyzes people's opinions, sentiments, evaluations, attitudes, and emotions from written language. It is one of the most active research areas in natural language processing and is also widely studied in data mining, Web mining, and text mining. In fact, this research has spread outside of computer science to the management sciences and social sciences due to its importance to business and society as a whole. The growing importance of sentiment analysis coincides with the growth of social media such as reviews, forum discussions, blogs, micro-blogs, Twitter, and social networks. For the first time in human history, we now have a huge volume of opinionated data recorded in digital form for analysis.Sentiment analysis systems are being applied in almost every business and social domain because opinions are central to almost all human activities and are key influencers of our behaviors. Our beliefs and perceptions of reality, and the choices we make, are largely conditioned on how others see and evaluate the world. For this reason, when we need to make a decision we often seek out the opinions of others. This is true not only for individuals but also for organizations.This book is a comprehensive introductory and survey text. It covers all important topics and the latest developments in the field with over 400 references. It is suitable for students, researchers and practitioners who are interested in social media analysis in general and sentiment analysis in particular. Lecturers can readily use it in class for courses on natural language processing, social media analysis, text mining, and data mining. Lecture slides are also available online.Table of Contents: Preface / Sentiment Analysis: A Fascinating Problem / The Problem of Sentiment Analysis / Document Sentiment Classification / Sentence Subjectivity and Sentiment Classification / Aspect-Based Sentiment Analysis / Sentiment Lexicon Generation / Opinion Summarization / Analysis of Comparative Opinions / Opinion Search and Retrieval / Opinion Spam Detection / Quality of Reviews / Concluding Remarks /

Bibliography / Author Biography

Principles of Gene Manipulation

Law, Life, Biocultures

Spatial Analysis in Epidemiology

Biochemistry: A Very Short Introduction

Unravelling the Double Helix

Geopolitics and the Green Revolution

Legumes include many very important crop plants that contribute very critical protein to the diets of both humans and animals around the world. Their unique ability to fix atmospheric nitrogen in association with Rhizobia enriches soil fertility, and establishes the importance of their niche in agriculture. Divided into two volumes, this work presents an up-to-date analysis of in vitro and recombinant DNA technologies for the improvement of grain, forage and tree legumes. Volume 10B presents the current state and future prospects of in vitro regeneration and genetic transformation expression and stability of transgenes modification of traits in almost all the important legumes, for example: soybean; peanut; pea; french bean; chick pea; pigeon pea; cowpea; mung bean; black gram; azuki bean; lentil; Lathyrus; lupinus; Lotus spp; Medicago spp; Trifolium spp; Winged bean; Guar; and tree legumes for their improvement.

This book collects the articles published in the Special Issue "Polymeric Materials: Surfaces, Interfaces and Bioapplications". It shows the advances in polymeric materials, which have tremendous applications in agricultural films, food packaging, dental restoration, antimicrobial systems, and tissue engineering. These polymeric materials are presented as films, coatings, particles, fibers, hydrogels, or networks. The potential to modify and modulate their surfaces or their content by different techniques, such as click chemistry, ozonation, breath figures, wrinkle formation, or electrospray, are also explained, taking into account the relationship between the structure and properties in the final application. Moreover, new trends in the development of such materials are presented, using more environmental friendly and safe methods, which, at the same time, have a high impact on our society.

Very Short Introductions: Brilliant, Sharp, Inspiring From the simplest bacteria to humans, all living things are composed of cells of one type or another, all of which have fundamentally the same chemistry. This chemistry must provide mechanisms that allow cells to interact with the external world, a means to power the cell, machinery to carry out varied processes within the cell, a structure within which everything runs, and also governance through a web of interlocking chemical reactions. Biochemistry is the study of those reactions, the molecules that are created, manipulated, and destroyed as a result of them, and the massive macromolecules (such as DNA, cytoskeletons, proteins and carbohydrates) that form the chemical machinery and structures on which these biochemical reactions take place. It didn't take long for an understanding of the chemistry of life to turn into a desire to manipulate it. Drugs and therapies all aim to modify biochemical processes for good or ill: Penicillin, derived from mould, stops bacteria making their cell walls. Aspirin, with its origins in willow bark, inhibits enzymes involved in inflammatory responses. A few nanograms of botulinum toxin (botox), can kill by preventing the release of neurotransmitters from the ends of nerves and so leads to paralysis and death, or give a wrinkle free forehead (if administered in very tiny quantities).This Very Short Introduction discusses the key concepts of biochemistry, as well as the historical figures in the field and the molecules they studied, before considering the current science and innovations in the field and the interaction between biochemistry, biotechnology, and synthetic biology. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

The authors also provide a comparative survey of the properties of genomes (genome size, gene families, synteny, and polymorphism) for prokaryotes as well as the main eukaryotic models.

Five Insects and Their Impacts on Human History

Introduction to Glycobiology

Principles of Development

Animal Physiology

Volume 1

An Introduction to Genetic Engineering

In the last 20 years cell culture has developed enormously from being used only in specialized areas of research to being the cornerstone of probably the world's fastest-growing industry, biotechnology. The primary aim of this book is to guide the newcomer progressively through all those areas which nowadays are fundamental to the performance of cell culture. The book will also prove useful to the experienced worker. Topics covered include setting up and equipping a cell culture laboratory, sterilization of fluids and equipment, culture media, culture technique, the maintenance of cell lines, primary culture and the isolation of new cell lines, specific cell types and their requirements, single cell cloning, quality control of cell lines and the prevention, detection, and cure of contamination, and good laboratory practice in the cell culture laboratory.

Unlocked

The genetic manipulation of plants

DNA Demystified

Observations and Principles