

Contents

Preface

page xv

Part I | Genetic Engineering in Context

Chapter 1	Introduction	2
Chapter 2	The Story of DNA	16
Chapter 3	Brave New World or Genetic Nightmare?	36

Part 2 | The Basis of Genetic Engineering

Chapter 4	Introducing Molecular Biology	52
Chapter 5	The Tools of the Trade	78
Chapter 6	Working with Nucleic Acids	94

Part 3 | The Methodology of Gene Manipulation

Chapter 7	Host Cells and Vectors	134
Chapter 8	Cloning Strategies	160
Chapter 9	The Polymerase Chain Reaction	188
Chapter 10	Selection, Screening and Analysis of Recombinants	210
Chapter 11	Bioinformatics	230
Chapter 12	Genome Editing	248

Part 4 | Genetic Engineering in Action

Chapter 13	Investigating Genes, Genomes and 'Otheromes'	264
Chapter 14	Genetic Engineering and Biotechnology	296
Chapter 15	Medical and Forensic Applications of Gene Manipulation	326

Chapter 16	Transgenic Plants and Animals	362
Chapter 17	The Other Sort of Cloning	390
	Glossary	405
	Index	439
Part 1 Genetic Engineering in Context		
Chapter 1	Introduction	
Chapter 2	The Story of DNA	
Chapter 3	From New World to Genetic Nightingale	
Part 2 The Basis of Genetic Engineering		
Chapter 4	Introducing Molecular Biology	
Chapter 5	The Tools of the Trade	
Chapter 6	Working with Plasmid Vectors	
Part 3 The Methodology of Gene Manipulation		
Chapter 7	Host Cells and Vectors	
Chapter 8	Cloning Strategies	
Chapter 9	The Polymerase Chain Reaction	
Chapter 10	Selection, Screening and Analysis	
Part 4 Genetic Engineering in Action		
Chapter 11	Biotechnology	
Chapter 12	Genome Editing	
Chapter 13	Investigating Genes, Genomes and 'Othromes'	
Chapter 14	Genetic Engineering and Biotechnology	
Chapter 15	Medical and Forensic Applications of Gene Manipulation	

Copyright © 2014 Pearson Education, Inc.

8067508