

Contents in Brief

PART THE PHYSICAL BASIS OF HEREDITY

1

CHAPTER 1 The Mendelian View of the Gene *Geoffrey Zubay*
CHAPTER 2 The Chromosomal Basis of Heredity *Geoffrey Zubay*
CHAPTER 3 The Chemical Nature of the Gene *Geoffrey Zubay and Julius Marmor*
CHAPTER 4 Reactions Involving DNA *Frederick J. Bollum, R.C. Peterson, and Geoffrey Zubay*

PART GENE EXPRESSION: FROM DNA TO PROTEIN

2

CHAPTER 5 Transcription: Synthesis of RNA *Ann Baker Burgess and Richard R. Burgess*
CHAPTER 6 Translation: Protein Synthesis *James W. Bodley*
CHAPTER 7 Protein Structure and Function *Irving Geis, F. Raymond Salemme, and Geoffrey Zubay*

PART MUTATION AND RECOMBINATION

3

CHAPTER 8 Normal and Altered Gene Expression: Detection and Selection of Phenotypes *Geoffrey Zubay*
CHAPTER 9 Mutations: Types of Mutations and Mutagenesis *Geoffrey Zubay*
CHAPTER 10 Mechanisms of Genetic Recombination *Geoffrey Zubay and Max Gottesman*

PART ARRANGEMENT OF GENES

4

CHAPTER 12 Genetic Analysis of Bacterial Viruses and Plasmids *Geoffrey Zubay*
CHAPTER 13 Mapping the Bacterial Chromosome *Geoffrey Zubay*
CHAPTER 14 Mapping the Eukaryotic Genome: *Drosophila* and Yeast *Geoffrey Zubay*
CHAPTER 15 Human Genetics: Establishing the Patterns of Inheritance and Gene Mapping *Luca Cavalli-Sforza and Geoffrey Zubay*

PART REGULATION OF GENE EXPRESSION

5

CHAPTER 16 Regulation of Gene Expression in Microorganisms *Geoffrey Zubay and Julius Marmor*
CHAPTER 17 Regulation of Gene Expression in Bacterial Viruses and Plasmids *Geoffrey Zubay, Susan Gottesman, and Max Gottesman*
CHAPTER 18 Regulation of Gene Expression in Higher Organisms *Geoffrey Zubay and Richard Palmiter*

PART ADVANCED TOPICS IN GENETICS

6

CHAPTER 19 Developmental Genetics *Mark Dworkin and Geoffrey Zubay*
CHAPTER 20 Evolution and Population Genetics *Luca Cavalli-Sforza*
CHAPTER 21 The Function of Mobile Genetic Elements *Geoffrey Zubay (with the assistance of James Shapiro)*
CHAPTER 22 Animal Viruses and Cancer *Joe Sambrook and Geoffrey Zubay*