



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 Marmur*
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 Marmur
- 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