

CONTENTS

Chapter 1 DNA structure and gene expression	1
Chapter 2 Chromosomes in cells	27
Chapter 3 Genes in pedigrees	55
Chapter 4 Cell-based DNA cloning	71
Chapter 5 Nucleic acid hybridization assays	95
Chapter 6 PCR, DNA sequencing and in vitro mutagenesis	119
Chapter 7 Organization of the human genome	139
Chapter 8 Human gene expression	169
Chapter 9 Instability of the human genome: mutation and DNA repair	209
Chapter 10 Physical and transcript mapping	241
Chapter 11 Genetic mapping of mendelian characters	269
Chapter 12 Genetic mapping of complex characters	283
Chapter 13 Genome projects	295
Chapter 14 Our place in the tree of life	315
Chapter 15 Identifying human disease genes	351
Chapter 16 Molecular pathology	377
Chapter 17 Genetic testing in individuals and populations	401
Chapter 18 Cancer genetics	427
Chapter 19 Complex diseases: theory and results	445
Chapter 20 Studying human gene structure, expression and function using cultured cells and Cell extracts	465
Chapter 21 Genetic manipulation of animals	491
Chapter 22 Gene therapy and other molecular genetic-based therapeutic approaches	515
Glossary	545
Indexes	557