

Table of contents

- **1 Introduction**
- **1 A Brief History**
- **2 The Molecular Nature of Genes**
- **3 An Introduction to Gene Function**
- **2 Methods of Molecular Biology**
- **4 Molecular Cloning Methods**
- **5 Molecular Tools for Studying Genes and Gene Activity**
- **3 Transcription in Prokaryotes**
- **6 The Mechanism of Transcription in Prokaryotes**
- **7 Operons: Fine Control of Prokaryotic Transcription**
- **8 Major Shifts in Prokaryotic Transcription**
- **9 DNA-Protein Interactions in Prokaryotes**
- **4 Transcription in Eukaryotes**
- **10 Eukaryotic RNA Polymerases and Their Promoters**
- **11 General Transcription Factors in Eukaryotes**
- **12 Transcription Activators in Eukaryotes**
- **13 Chromatin Structure and Its Effects on Transcription**
- **5 Posttranscriptional Events**
- **14 Messenger RNA Processing I: Splicing**
- **15 Messenger RNA Processing II: Capping and Polyadenylation**
- **16 Other RNA Processing Events**
- **6 Translation**
- **17 The Mechanism of Translation I: Initiation**
- **18 The Mechanism of Translation II: Elongation and Termination**
- **19 Ribosomes and Transfer RNA**
- **7 DNA Replication, Recombination, and Transposition**
- **20 DNA Replication I: Basic Mechanism and Enzymology**
- **21 DNA Replication II: Detailed Mechanism**
- **22 Homologous Recombination**
- **23 Transposition**
- **8 Genomes**
- **24 Genomics and Proteomics**