



Human Genetics, 12th edition

Lewis

©2018

ISBN: 1259700933 / 9781259700934

Detailed List of Changes:

Highlights in the new edition update information and discoveries, ease learning, and conceptually connect chapters.

Chapter 1 What Is in a Human Genome?

- How a precision medicine program is integrating human genome information with environmental factors to dissect health and disease, on a population level

Chapter 4 Single-Gene Inheritance

- How genome analysis provides a new view of Mendel's laws

Chapter 8 Genetics of Behavior

- Schizophrenia arises from excess synaptic pruning
- Syndromes that include autism

Chapter 9 DNA Structure and Replication

- More subheads ease learning
- The “loop-ome” brings genes together

Chapter 10 Gene Action: From DNA to Protein

- Why proteins are important

Chapter 12 Gene Mutation

- More subheads to distinguish mutations, polymorphisms, and gene variants
- Figures and discussion on somatic mosaicism
- The famous painting of the “blue people” of Kentucky

Chapter 13 Chromosomes

- Less history, more new technology

Chapter 14 Constant Allele Frequencies and DNA Forensics

- DNA profiling confirms genocide

Chapter 15 Changing Allele Frequencies

- Steel syndrome in East Harlem—how considering population substructure improves health care

Chapter 16 Human Ancestry and Evolution

- Gene flow among archaic and modern humans

Chapter 18 Cancer Genetics and Genomics

- The “3 strikes” to cancer
- Chimeric antigen receptor technology
- Liquid biopsy

Chapter 19 DNA Technologies

- Genome editing and gene drives

Chapter 20 Genetic Testing and Treatment

- Genome editing in research and the clinic
- Gene therapy successes

Chapter 22 Genomics

- Sequencing genomes of the deceased
- Synthetic genomes

New Figures

- 1.1 Levels of genetics
- 1.3 Gene to protein to person
- 1.4 A mutation can alter a protein, causing symptoms
- 1.8 Precision medicine
- 2.21 The human microbiome
- 3.23 Zika virus causes birth defects
- 4.18 Parent and child trios
- 5.9 Ragged red fibers in mitochondrial disease
- 8.9 Schizophrenia and overactive synaptic pruning
- 9.14 DNA looping
- 11.7 Open or closed chromatin
- 12.11 The blue people of Kentucky
- 16.6 Gene flow among archaic and anatomically modern humans

- 16.9 The dystrophin gene
- 19.11 CRISPR-Cas9 genome editing
- 19.12 Gene drives

New Tables

- 3.2 Paternal Age Effect Conditions
- 8.3 Famous People Who Had Autistic Behaviors
- 8.4 Genetic Syndromes That Include Autism
- 16.1 Neanderthal Genes in Modern Human Genomes
- 19.4 Genome Editing Techniques
- 19.5 Applications of CRISPR-Cas9 Genome Editing
- 20.2 Genes Associated with Athletic Characteristics
- 20.3 Pharmacogenetics
- 22.2 Genomics Coverage in Other Chapters