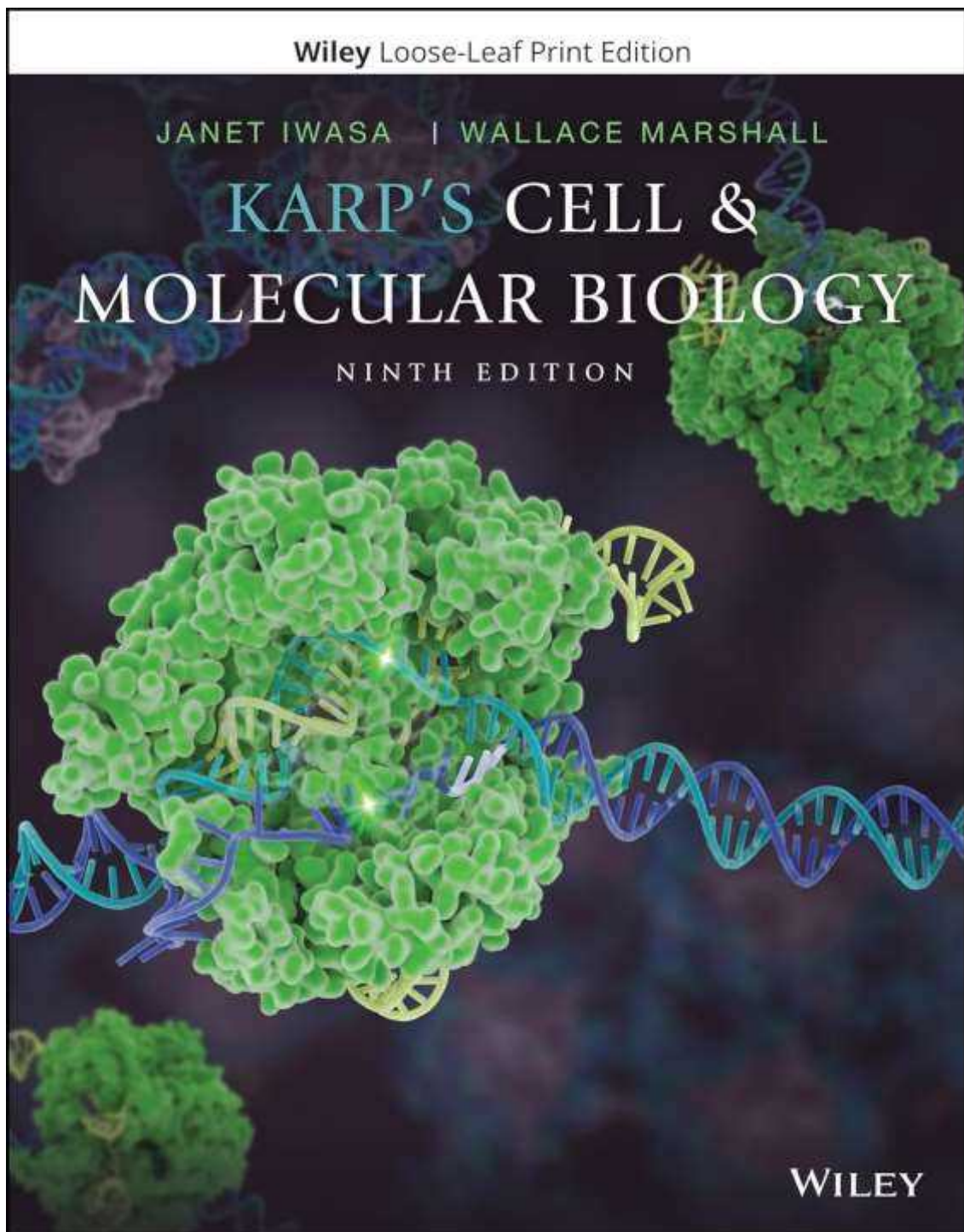


TEST BANK

Karp's Cell and Molecular Biology

Gerald Karp, Janet Iwasa & Wallace Marshall

9th Edition



Test Bank for Karp's Cell and Molecular Biology 9th Edition Karp

Table of Contents:

Chapter 1: Introduction to the Study of Cell and Molecular Biology

Chapter 2: The Chemical Basis of Life

Chapter 3: Bioenergetics, Enzymes, and Metabolism

Chapter 4: The Structure and Function of the Plasma Membrane

Chapter 5: Aerobic Respiration and the Mitochondrion

Chapter 6: Photosynthesis and the Chloroplast

Chapter 7: Interactions between Cells and Their Environment

Chapter 8: Cytoplasmic Membrane Systems: Structure, Function, and Membrane Trafficking

Chapter 9: The Cytoskeleton and Cell Motility

Chapter 10: The Nature of the Gene and the Genome

Chapter 11: The Central Dogma: DNA to RNA to Protein

Chapter 12: Control of Gene Expression

Chapter 13: DNA Replication and Repair

Chapter 14: Cell Division 6

Chapter 15: Cell Signaling and Signal Transduction: Communication between Cells

Chapter 16: Cancer

Chapter 17: The Immune Response

Chapter 18: Techniques in Cell and Molecular Biology

Karp's Cell and Molecular Biology 9th Edition TEST BANK

Package Title: Test Bank

Course Title: Karp9e

Chapter Number: 1

Chapter 1: Introduction to the Study of Cell and Molecular Biology

Karp's Cell and Molecular Biology, 9th Edition

Question Type: Multiple Choice

1) Who was the first person to name what he thought were single cells?

- a) Leeuwenhoek
- b) Hooke
- c) Schleiden
- d) Schwann
- e) Virchow

Answer: b

Difficulty: Easy

Learning Objective: LO 1.1 Identify the three tenets of cell theory.

Section Reference: Section 1.1 The Discovery of Cells

2) The first compound light microscopes were constructed by the end of the sixteenth century. What characteristic defines a compound microscope?

- a) It has a moveable stage.
- b) It has multiple lenses.
- c) Its lens is double the size of simple microscopes.
- d) The lens has two different colors.
- e) It has two different light sources.

Answer: b

Difficulty: Easy

Learning Objective: LO 1.1 Identify the three tenets of cell theory.

Section Reference: Section 1.1 The Discovery of Cells

3) Who was the first scientist to examine and describe living cells?

- a) Leeuwenhoek
- b) Hooke
- c) Schleiden
- d) Schwann
- e) Virchow

Answer: a

Difficulty: Easy

Learning Objective: LO 1.1 Identify the three tenets of cell theory.

Section Reference: Section 1.1 The Discovery of Cells

4) Who is generally credited with the discovery of cells?

- a) Leeuwenhoek
- b) Hooke
- c) Schleiden
- d) Schwann
- e) Virchow

Answer: b

Difficulty: Easy

Learning Objective: LO 1.1 Identify the three tenets of cell theory.

Section Reference: Section 1.1 The Discovery of Cells

5) Despite being correct about the first two tenets of the Cell Theory, Schleiden and Schwann made an error about another central feature of cells. What was their mistaken claim?

- a) They believed that all cells were smaller than 2 μ in diameter.
- b) They claimed that all cells were exactly the same in every detail.
- c) They described cells as immortal.
- d) They agreed that cells could arise from noncellular materials.
- e) They stated that all cells had nuclei through their entire existence.

Answer: d

Difficulty: Medium

Learning Objective: LO 1.1 Identify the three tenets of cell theory.

Section Reference: Section 1.1 The Discovery of Cells

6) Which of the following characteristics is NOT a basic property of cells?

- a) Cells carry out a variety of emotional reactions.
- b) Cells engage in numerous mechanical activities.
- c) Cells generally respond to stimuli.
- d) Cells are capable of self-regulation.
- e) Cells evolve.

Answer: a

Difficulty: Easy

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

7) Which of the following statements accurately characterize cells?

- a) Cells are highly complex and organized.
- b) Cells possess a genetic program and the means to use it.
- c) Cells are capable of producing more of themselves.

Karp's Cell and Molecular Biology 9th Edition TEST BANK

- d) Cells acquire and utilize energy.
- e) All choices are correct.

Answer: e

Difficulty: Easy

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

8) The first culture of human cells was begun by George and Martha Gey of Johns Hopkins University in 1951. The cells were obtained from a malignant tumor and named_____cells after the donor, _____.

- a) MaLe, Mary Leeds
- b) HeLa, Henrietta Lacks
- c) Roberts, John Roberts
- d) MaLe, Martin Lewis
- e) HeLa, Helen Lassiter

Answer: b

Difficulty: Medium

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

9) Cells grown in culture, outside the body are described as cells grown_____.

- a) *in vivo*
- b) live
- c) *in vitro*
- d) *in culturo*
- e) vivacious

Answer: c

Difficulty: Medium

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

10) A high powered microscope that allows cellular organelles to be examined in great detail is called _____.

- a) a refractive microscope
- b) an electron microscope
- c) a fluorescence microscope
- d) a scanning tunneling microscope
- e) a confocal laser scanning microscope

Answer: b

Difficulty: Easy

Karp's Cell and Molecular Biology 9th Edition TEST BANK

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.
Section Reference: Section 1.2 Basic Properties of Cells

11) Which list shows the correct order for cellular complexity from largest to smallest units?

- a) organelles, polymers, atoms, complexes, molecules
- b) organelles, complexes, polymers, molecules, atoms
- c) organelles, molecules, complexes, atoms, polymers
- d) organelles, atoms, molecules, complexes, polymers

Answer: b

Difficulty: Easy

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.
Section Reference: Section 1.2 Basic Properties of Cells

12) The apical ends of intestinal cells face the intestinal channel and have long processes that facilitate the absorption of nutrients. What is the name of these processes and what cytoskeletal element forms their internal skeleton?

- a) microvilli, microtubules
- b) villi, microtubules
- c) microvilli, actin filaments
- d) villi, actin filaments
- e) microvilli, intermediate filaments

Answer: c

Difficulty: Medium

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.
Section Reference: Section 1.2 Basic Properties of Cells

13) Virtually all chemical changes that take place in cells require _____, molecules that greatly increase the rate at which a chemical reaction occurs.

- a) DNAs
- b) carbohydrates
- c) ligands
- d) enzymes

Answer: d

Difficulty: Easy

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.
Section Reference: Section 1.2 Basic Properties of Cells

14) You are conducting an experiment by trying to reproduce the work performed in 1891 by Hans Driesch, a German embryologist. Working with a fertilized sea urchin egg, you allow it to complete the first cell division after fertilization. You then carefully separate the two cells of the embryo and allow

their development to continue. Based on Driesch's experiment, which result below would you expect to happen?

- a) Both of the cells will die.
- b) Both of the cells will develop into complete and normal embryos.
- c) One cell will develop into a normal, though smaller, embryo; the other dies.
- d) One cell will develop into half an embryo; the other will develop into the other half of the embryo.
- e) One cell will develop into a defective embryo and the other will die.

Answer: b

Difficulty: Hard

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

15) The original cell which arose billions of years ago is referred to by some evolutionary biologists as the_____.

- a) first universal common ancestor
- b) last universal common ancestor
- c) evolutionary tree root
- d) evolutionary shrub
- e) first eukaryote

Answer: b

Difficulty: Medium

Learning Objective: LO 1.2 Explain the importance of the fundamental properties shared by all cells.

Section Reference: Section 1.2 Basic Properties of Cells

16) What characteristics distinguish prokaryotic and eukaryotic cells?

- a) Eukaryotes have membrane-bound organelles; prokaryotes do not.
- b) Prokaryotes have relatively little DNA; eukaryotes generally have much more.
- c) Eukaryotic chromosomes are linear; prokaryotic chromosomes are circular.
- d) Eukaryotic DNA is usually heavily associated with protein to form a nucleoprotein complex called chromatin, which is not seen in prokaryotic genetic material.
- e) All of these are correct.

Answer: e

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

17) Which of the following are NOT considered to belong to the Archaea?

- a) Methanogens
- b) Halophiles
- c) Acidophiles
- d) Thermophiles

Karp's Cell and Molecular Biology 9th Edition TEST BANK

e) Eubacteria

Answer: e

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

18) Which of the following are considered to be eukaryotes?

- a) amoebae
- b) yeast
- c) holly
- d) starfish
- e) all choices are eukaryotic

Answer: e

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

19) The genetic material of a prokaryotic cell is present in the _____, a poorly defined region of the cell that lacks a boundary membrane to separate it from the surrounding cytoplasm.

- a) nucleus
- b) chromatic region
- c) nucleoid
- d) pharmacopeia
- e) genetome

Answer: c

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

20) Some bacteria can pass a piece of DNA from a donor bacterial cell to a recipient bacterial cell through a structure called a pilus. What is this process called?

- a) confirmation
- b) transduction
- c) transformation
- d) conjugation
- e) fission

Answer: d

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

21) Cyanobacteria are capable of photosynthesis, but many of them also convert nitrogen gas into reduced forms of nitrogen (such as ammonia) that can be used by cells in the synthesis of nitrogen-containing organic compounds, including amino acids and nucleotides. This process is called_____.

- a) nitrogen fixation
- b) denitrification
- c) nitrification
- d) respiration
- e) ammoniation

Answer: a

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

22) The process by which a relatively unspecialized cell becomes highly specialized is called_____.

- a) differentiation
- b) determination
- c) degeneracy
- d) denaturation
- e) renaturation

Answer: a

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

23) Bacteria often live in complex, multi-species communities, like the layer of plaque that grows on your teeth; such a community is called_____.

- a) a biotome
- b) a microtome
- c) a biofilm
- d) an anatome

Answer: c

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

24) The rapidity and cost-efficiency of DNA sequencing has made it possible to sequence virtually all of the genes present in the microbes of a given habitat. This generates a collective genome for that habitat, which has come to be called_____.

Karp's Cell and Molecular Biology 9th Edition TEST BANK

- a) a metachron
- b) a metagenome
- c) a netagenome
- d) a megagene
- e) an exogenome

Answer: b

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

25) The collection of bacteria that live on and within the human body are being isolated, identified and characterized; they are referred to as the human_____. It has been demonstrated that these organisms differ based upon the age, diet, geography and state of health of the human from which they were obtained.

- a) macrobiome
- b) metagenome
- c) minibiome
- d) microbiome
- e) homobiome

Answer: d

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

26) Studies on mice suggest that bacterial species predominating in obese individuals differ from those in the digestive tracts of lean individuals and that they play a role in weight gain in obese individuals. What are these bacteria in obese individuals proposed to do that increases weight gain in obese individuals?

- a) They make obese mice eat more food.
- b) They release chemicals that increase the caloric intake by the mice.
- c) The bacteria in obese individuals may release more calories from digested food than their counterparts in leaner individuals.
- d) The bacteria in obese individuals turn the food in the intestines to fat.
- e) The bacteria in obese individuals produce gas that makes their hosts obese.

Answer: c

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

27) Which of the following is NOT a model organism used for understanding basic processes of life?

- a) *Mus musculus*
- b) *Drosophila melanogaster*
- c) *Homo sapiens*

Karp's Cell and Molecular Biology 9th Edition TEST BANK

- d) *Arabidopsis thaliana*
- e) *Caenorhabditis elegans*

Answer: c

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

28) The field of biological research in which biologists are attempting to create a living cell in the laboratory, essentially from scratch is known as _____. More modestly, this branch of biology also has a goal of developing novel life forms, beginning with existing organisms, that have a unique value in medicine, industry or in cleaning up the environment.

- a) megalomaniacal biology
- b) synthetic biology
- c) production-grade biology
- d) industrial biology
- e) pharmaceutical biology

Answer: b

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

29) What is the most appropriate unit of measurement for macromolecular complexes including ribosomes and microfilaments?

- a) picometers
- b) angstroms
- c) nanometers
- d) micrometers
- e) centimeters

Answer: c

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

30) What is the most appropriate unit of measurement for most types of cells?

- a) picometers
- b) angstroms
- c) nanometers
- d) micrometers
- e) centimeters

Answer: d

Karp's Cell and Molecular Biology 9th Edition TEST BANK

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

31) Which statement is NOT correct regarding Archaea?

- a) They are considered more closely related to bacteria than to eukarya.
- b) Some are able to generate methane from carbon dioxide and hydrogen gases.
- c) Some are halophiles capable of surviving in a 5M osmolality.
- d) Some can survive temperatures above 120°C.

Answer: a

Difficulty: Easy

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

32) The flagellum of *E. coli* is chemically most similar to the flagellum of_____.

- a) a human sperm cell
- b) a protist
- c) green algae like *Euglena*
- d) the bacterium *Salmonella*
- e) all are made of the same molecules

Answer: d

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

33) Which of the following is NOT a feature shared by all cells?

- a) plasma membrane with similar chemical construction
- b) genetic information encoded in DNA nucleotides
- c) shared metabolic pathways
- d) division of cells into nucleus and cytoplasm
- e) similar energy storing chemicals such as ATP

Answer: d

Difficulty: Medium

Learning Objective: LO 1.3 Compare the structures and functions of prokaryotic and eukaryotic cells.

Section Reference: Section 1.3 Two Fundamentally Different Classes of Cells

34) Which feature is unique to some eukaryotic cells and never seen in prokaryotic cells?