

1. Which type of epithelium is primarily involved in the synthesis and release of substances such as proteins, lipids, and carbohydrates?

- A. Squamous epithelium
- B. Secretory epithelium
- C. Cuboidal epithelium
- D. Columnar epithelium

Answer: B. Secretory epithelium

2. What distinguishes exocrine glands from endocrine glands?

- A. Presence of a duct system
- B. Absence of a duct system
- C. Location in the body
- D. Mode of secretion

Answer: A. Presence of a duct system

3. Which type of gland does not have a duct system for secretion?

- A. Unicellular glands
- B. Exocrine glands
- C. Endocrine glands
- D. Multicellular glands

Answer: C. Endocrine glands

4. Which type of gland is composed of a single cell?

- A. Exocrine glands
- B. Endocrine glands
- C. Unicellular glands
- D. Multicellular glands

Answer: C. Unicellular glands

5. What is the distinguishing characteristic of multicellular glands?

- A. Presence of multiple ducts
- B. Single-cell structure
- C. Multiple cells working together for

secretion

D. Absence of secretory function

Answer: C. Multiple cells working together for secretion

6. During fetal development, how do glands typically form?

A. Through direct differentiation from neural crest cells

B. Via migration from the circulatory system

C. By proliferation and growth from covering epithelia into underlying connective tissue

D. Through transformation of bone marrow cells

Answer: C. By proliferation and growth from covering epithelia into underlying connective tissue

7. If a gland maintains its connection with

the body surface, what type of gland does it become?

- A. Endocrine gland
- B. Gland with multiple ducts
- C. Exocrine gland
- D. Gland with specialized nerve endings

Answer: C. Exocrine gland

8. What happens when a gland loses its connection with the body surface during development?

- A. It becomes an exocrine gland
- B. Surrounding capillaries deliver its products
- C. It differentiates into a variety of cell types
- D. It loses its ability to produce substances

Answer: B. Surrounding capillaries deliver its products

9. What characterizes the transition from exocrine to endocrine gland development?

A. Differentiation into specialized nerve cells

B. The formation of multiple duct systems

C. Retention or loss of connection with the surface

D. Increased production of mucus

Answer: C. Retention or loss of connection with the surface

10. How do exocrine and endocrine glands differ in their developmental process?

A. By the types of precursor cells involved

B. Through the presence or absence of surrounding capillaries

C. Depending on the number of cell types they differentiate into

D. Based on the timing of their formation

during fetal development

Answer: B. Through the presence or absence of surrounding capillaries

11. What is the primary function of the parenchyma in gland structure?

A. To surround and support the gland

B. To secrete substances

C. To provide a framework for ducts

D. To transport hormones to target

tissues

Answer: B. To secrete substances

12. What is the role of stroma in gland structure?

A. To secrete hormones directly into the bloodstream

B. To divide the gland into lobes and lobules

C. To provide a framework that

surrounds and supports the parenchyma

D. To facilitate the exchange of nutrients between cells

Answer: C. To provide a framework that surrounds and supports the parenchyma

13. What surrounds most glands in the body?

A. Parenchyma

B. Stroma

C. Ducts

D. Capsules

Answer: D. Capsules

14. How do capsules contribute to gland organization?

A. By secreting hormones directly into the bloodstream

B. By dividing the gland into lobes and lobules

C. By providing structural support to the parenchyma

D. By facilitating the transport of substances through ducts

Answer: B. By dividing the gland into lobes and lobules

15. What divides glands into smaller compartments, such as lobes and lobules?

A. Stroma

B. Ducts

C. Parenchyma

D. Capsules

Answer: D. Capsules

16. Which type of gland releases its secretions through exocytosis?

A. Apocrine gland

B. Holocrine gland

C. Merocrine gland

D. Serous gland



Answer: C. Merocrine gland

17. What is the primary mechanism of secretion for merocrine glands?

A. Rupture of gland cells

B. Release of cytoplasmic portions

C. Fusion of secretory vesicles with the cell membrane

D. Accumulation of secretory products in the duct

Answer: C. Fusion of secretory vesicles with the cell membrane

18. Which glands release their secretions along with portions of the cytoplasm of the secreting cells?

A. Merocrine glands

B. Apocrine glands

C. Holocrine glands

D. Serous glands

Answer: B. Apocrine glands

19. Sebaceous glands, which secrete oil onto the surface of the skin, are examples of which type of gland?

- A. Merocrine gland
- B. Apocrine gland
- C. Holocrine gland
- D. Serous gland

Answer: C. Holocrine gland

20. Which type of gland secretes a watery, protein-rich fluid often containing enzymes?

- A. Merocrine gland
- B. Apocrine gland
- C. Holocrine gland
- D. Serous gland

Answer: D. Serous gland

21. What do parotid salivary glands primarily secrete?

- A. Oil
- B. Mucus
- C. Watery, protein-rich fluid
- D. Digestive enzymes

Answer: C. Watery, protein-rich fluid

22. Goblet cells in the respiratory and digestive tracts are examples of which type of gland?

- A. Merocrine gland
- B. Apocrine gland
- C. Holocrine gland
- D. Mucous gland

Answer: D. Mucous gland

23. Which type of gland releases its secretions by the rupture and destruction of entire gland cells?

- A. Merocrine gland
- B. Apocrine gland
- C. Holocrine gland

D. Serous gland

Answer: C. Holocrine gland

24. Which glands help to lubricate and protect epithelial surfaces with a thick, viscous fluid called mucus?

A. Merocrine glands

B. Apocrine glands

C. Serous glands

D. Mucous glands

Answer: D. Mucous glands

25. The release of secretory vesicles containing sweat and saliva exemplifies the function of which type of gland?

A. Merocrine gland

B. Apocrine gland

C. Holocrine gland

D. Serous gland

Answer: A. Merocrine gland

26. What is the most common method of protein or glycoprotein secretion in merocrine glands?

- A. Endocytosis
- B. Phagocytosis
- C. Exocytosis
- D. Pinocytosis

Answer: C. Exocytosis

27. Which type of secretion involves the extrusion of product along with small amounts of cytoplasm and cell membrane?

- A. Merocrine
- B. Apocrine
- C. Holocrine
- D. Serous

Answer: B. Apocrine

28. What type of glands are typically associated with merocrine secretion?

- A. Sweat glands
- B. Sebaceous glands
- C. Mammary glands
- D. Liver glands

Answer: A. Sweat glands

29. In which type of gland do cells accumulate product continuously, undergo terminal differentiation, and then release the product along with cell debris?

- A. Merocrine gland
- B. Apocrine gland
- C. Holocrine gland
- D. Serous gland

Answer: C. Holocrine gland

30. Which glands are primarily associated with apocrine secretion?

- A. Salivary glands
- B. Sebaceous glands
- C. Sweat glands

D. Mammary glands

Answer: D. Mammary glands

31. What is released together with the product in apocrine secretion?

A. Nucleus

B. Mitochondria

C. Cytoplasm and cell membrane

D. Golgi apparatus

Answer: C. Cytoplasm and cell membrane

32. Which type of secretion involves complete cell disruption to release the product and cell debris?

A. Merocrine

B. Apocrine

C. Holocrine

D. Serous

Answer: C. Holocrine

33. What is the primary method of product release in merocrine secretion?

A. Extrusion of cell contents

B. Accumulation of product at the cell surface

C. Rupture of entire cells

D. Fusion of vesicles with the cell membrane

Answer: D. Fusion of vesicles with the cell membrane

34. Which type of secretion is characteristic of sebaceous glands?

A. Merocrine

B. Apocrine

C. Holocrine

D. Serous

Answer: C. Holocrine

35. What type of glands are involved in merocrine secretion?



A. Sebaceous glands

B. Salivary glands

C. Mammary glands

D. Sweat glands

Answer: D. Sweat glands

36. What occurs to the cells during holocrine secretion?

A. They shrink in size

B. They accumulate product at the cell surface

C. They undergo terminal differentiation and disruption

D. They release product through exocytosis

Answer: C. They undergo terminal differentiation and disruption

37. What is the distinguishing feature of apocrine secretion compared to merocrine

and holocrine secretion mechanisms?

- A. Release of secretory vesicles
- B. Extrusion of entire cells
- C. Accumulation of product at the apical ends of cells
- D. Fusion of vesicles with the cell membrane

Answer: C. Accumulation of product at the apical ends of cells

38. Which type of secretion involves the release of product along with small amounts of cytoplasm and cell membrane?

- A. Merocrine
- B. Apocrine
- C. Holocrine
- D. Serous

Answer: B. Apocrine

39. What is the primary secretion method of merocrine glands?

A. Accumulation of product at the cell surface

B. Extrusion of cell contents

C. Rupture of entire cells

D. Fusion of vesicles with the cell membrane

Answer: D. Fusion of vesicles with the cell membrane

40. Which glands are primarily involved in holocrine secretion?

A. Sweat glands

B. Salivary glands

C. Sebaceous glands

D. Mammary glands

Answer: C. Sebaceous glands

41. What is the most common method of protein secretion in merocrine glands?

- A. Endocytosis
- B. Exocytosis
- C. Phagocytosis
- D. Pinocytosis

Answer: B. Exocytosis

42. What happens to the entire cell during holocrine secretion?

- A. It releases product through exocytosis
- B. It accumulates product at the cell surface
- C. It undergoes terminal differentiation and disruption
- D. It accumulates product in vesicles

Answer: C. It undergoes terminal differentiation and disruption

43. Which glands are primarily associated with merocrine secretion?

- A. Sebaceous glands
- B. Sweat glands

C. Mammary glands

D. Salivary glands

Answer: B. Sweat glands

44. Which type of secretion is characterized by the synthesis of proteins, particularly digestive enzymes?

A. Serous secretion

B. Mucous secretion

C. Apocrine secretion

D. Merocrine secretion

Answer: A. Serous secretion

45. What is the distinguishing feature of serous cells compared to mucous cells?

A. Presence of heavily glycosylated proteins

B. Synthesis of digestive enzymes

C. Lack of secretory granules

D. Well-developed RER and Golgi complexes

Answer: B. Synthesis of digestive enzymes

46. What is the main component of the secretory granules in serous cells?

- A. Mucins
- B. Digestive enzymes
- C. Lipids
- D. Nucleic acids

Answer: B. Digestive enzymes

47. How do serous cells appear when stained with basophilic or acidophilic stains?

- A. They stain intensely
- B. They stain poorly
- C. They appear transparent
- D. They show no staining

Answer: A. They stain intensely

48. Which type of cell contains secretory

granules filled with heavily glycosylated proteins called mucins?

- A. Serous cells
- B. Mucous cells
- C. Apocrine cells
- D. Merocrine cells

Answer: B. Mucous cells

49. What happens to mucins when released from mucous cells?

- A. They become dehydrated
- B. They form digestive enzymes
- C. They become hydrated and form a layer of mucus
- D. They undergo degradation

Answer: C. They become hydrated and form a layer of mucus

50. Why do secretory granules in mucous cells often stain poorly during routine histological preparations?

A. Due to the lack of glycosylation

B. Because they are heavily stained with basophilic stains

C. Because hydrophilic mucins are usually washed away

D. Due to the absence of RER and Golgi complexes

Answer: C. Because hydrophilic mucins are usually washed away

51. What is the primary role of serous cells in the body?

A. To produce mucus

B. To synthesize digestive enzymes

C. To store lipids

D. To release hormones

Answer: B. To synthesize digestive enzymes

52. Which type of glandular secretion forms a layer of mucus when released?



- A. Serous secretion
- B. Mucous secretion
- C. Apocrine secretion
- D. Merocrine secretion

Answer: B. Mucous secretion

53. Which type of protein is synthesized by serous cells?

- A. Mucins
- B. Glycoproteins
- C. Digestive enzymes
- D. Lipids

Answer: C. Digestive enzymes

54. What distinguishes the appearance of serous cells from mucous cells under a microscope?

- A. Presence of secretory granules
- B. Degree of glycosylation
- C. Staining intensity with basophilic or acidophilic stains

D. Presence of well-developed Golgi complexes

Answer: C. Staining intensity with basophilic or acidophilic stains

55. Which type of secretion contains proteins that are mostly not glycosylated?

A. Serous secretion

B. Mucous secretion

C. Apocrine secretion

D. Merocrine secretion

Answer: A. Serous secretion

