

"GLANDS"

specialized epithelial cells which produce secretions.

↓
release substances

used elsewhere
(secretions)

discarded
(excretions)

exocrine glands

Unicellular

multicellular

(Goblet cells)

(body's most exo. glands)

gen. scattered among non-secretory cells in resp. & GI tract.

CLASSIFICATION OF EXO. GLANDS

structural/
morphology

mode of
secretion

Nature of
secretory products

STRUCTURAL CLASSIFICATION

branched duct
(compound)

unbranched duct
(simple)

Simple Exo. Gland

Simple Acinar

Simple Tubular

- consists of single acinus (alveolus)
- e.g. urethral glands of penile part of male urethra.

simple branched acinar gland

acinus divided/
partitioned

e.g. sebaceous
gland of skin

several acini lined
along a duct

e.g. meibomian glands
of eyelids

straight: intestinal gland

coiled: terminal portion is
coiled e.g. sweat gland

branched: terminal portion is
branched e.g.
i. principal stomach glands
ii. endometrial glands of
uterus

Compound Gland (Branched duct)

Tubular

- no. of distinct ducts that open into main excretory duct

- e.g. Brunner's Gland of Duodenum

Acinar

- main duct (branched)

- secretory units are acinar in shape.

- e.g. exocrine portion of pancreas

Tubuloacinar

- secretory portions are in the form of irregularly branched tubules.

- highly branched duct sys.

- e.g. submandibular salivary glands

Exocrine Glands

unicellular (Goblet cells) multicellular (most exocrine glands)

Exocrine Glands Classification

morphology/structure

nature of secretion

mode of secretion

Simple

Compound

Nature of Secretory Product

Acinar
urethral gland of penile part of male urethra

tubular
straight (intestinal glands)
coiled (sweat glands)
branched (stomach and endometrial glands of uterus)

Simple branched acinar gland

acinus partitioned
↓
e.g skin sebaceous glands

several acini are arranged along ducts
↓
e.g meibomian glands of eyelids

tubular
(Brunner's gland of duodenum)
acinar
(exocrine portion of pancreas)
tubuloacinar
(submandibular salivary gland)

mucous serous mixed

i/ mucus
→ secretion (mucin) - slimy carb-rich
→ e.g pyloric gland of stomach
- mucin → strongly hydrophilic gp
↓
released
↓
hydrated (mucus)

ii/ serous
→ protein-rich/highly enz. activity thin secretion
→ e.g parotid salivary gland

iii/ mixed
→ both mucus + serous secretion
→ e.g seromucous glands are sublingual & submandibular glands

Mode of secretion

merocrine glands

- eccrine glands
- secretion (no cytoplasm loss)
- most exocrine glands
- eg salivary glands, lacrimal glands, intestinal glands

apocrine glands

- some part of apical cytoplasm is lost
- e.g.
 - ① sweat glands
 - axillae (armpits)
 - perianal area
 - ② ceruminous glands of external auditory meatus (secrete ear wax)
 - ③ In lactating mammary glands
 - fat globules are also secreted by apocrine mechanism.

Holocrine glands

- all cellular comp. are discharged
- e.g skin's sebaceous glands.

fibroblasts

myofibroblasts

merocrine
glands

→ eccrine glands

→ secretion (no cytoplasm loss)

→ most exocrine glands

→ eg salivary glands,
lacrimal glands,
intestinal glands

Mode of secretion

↓
apocrine
glands

→ some part of apical cytoplasm is lost

→ e.g.

① sweat glands

axillae (armpits)

perianal area

② ceruminous glands of external auditory meatus
(secrete ear wax)

③ In lactating mammary glands

↓
fat globules are also secreted by apocrine mechanism.

↓
Holocrine
gland

→ all are

→ e.g.

↓

Holocrine glands

→ all cellular comp.
are discharged

→ e.g skin's
sebaceous
glands.