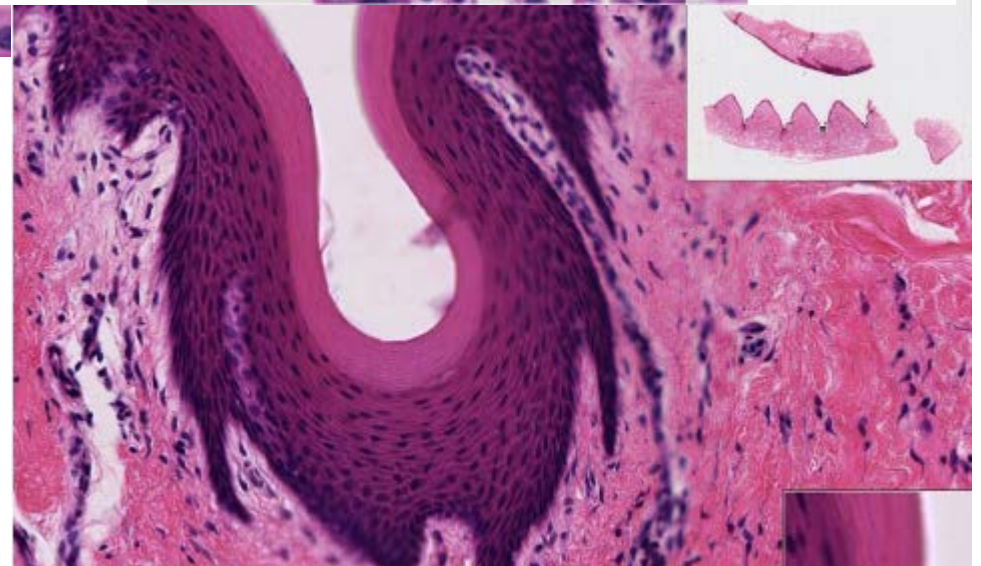
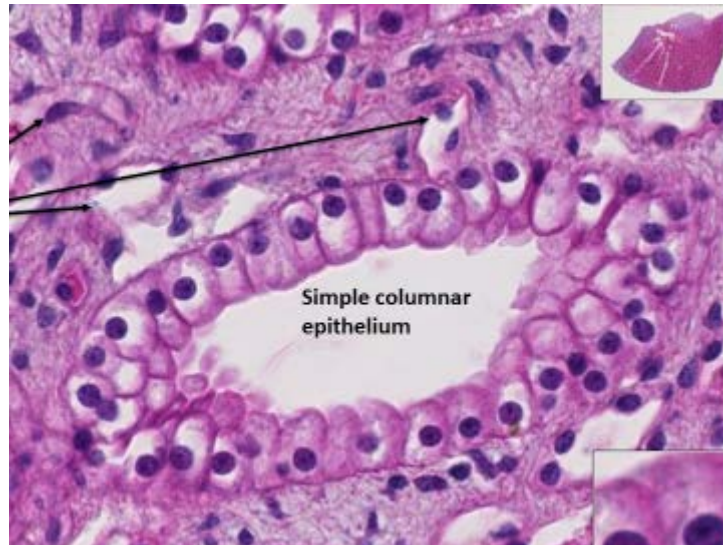
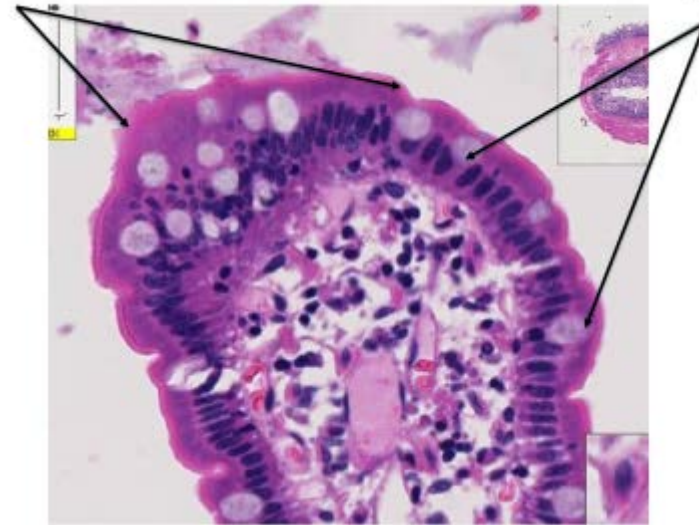


# LABORATORY EXERCISES FOR EPITHELIUM

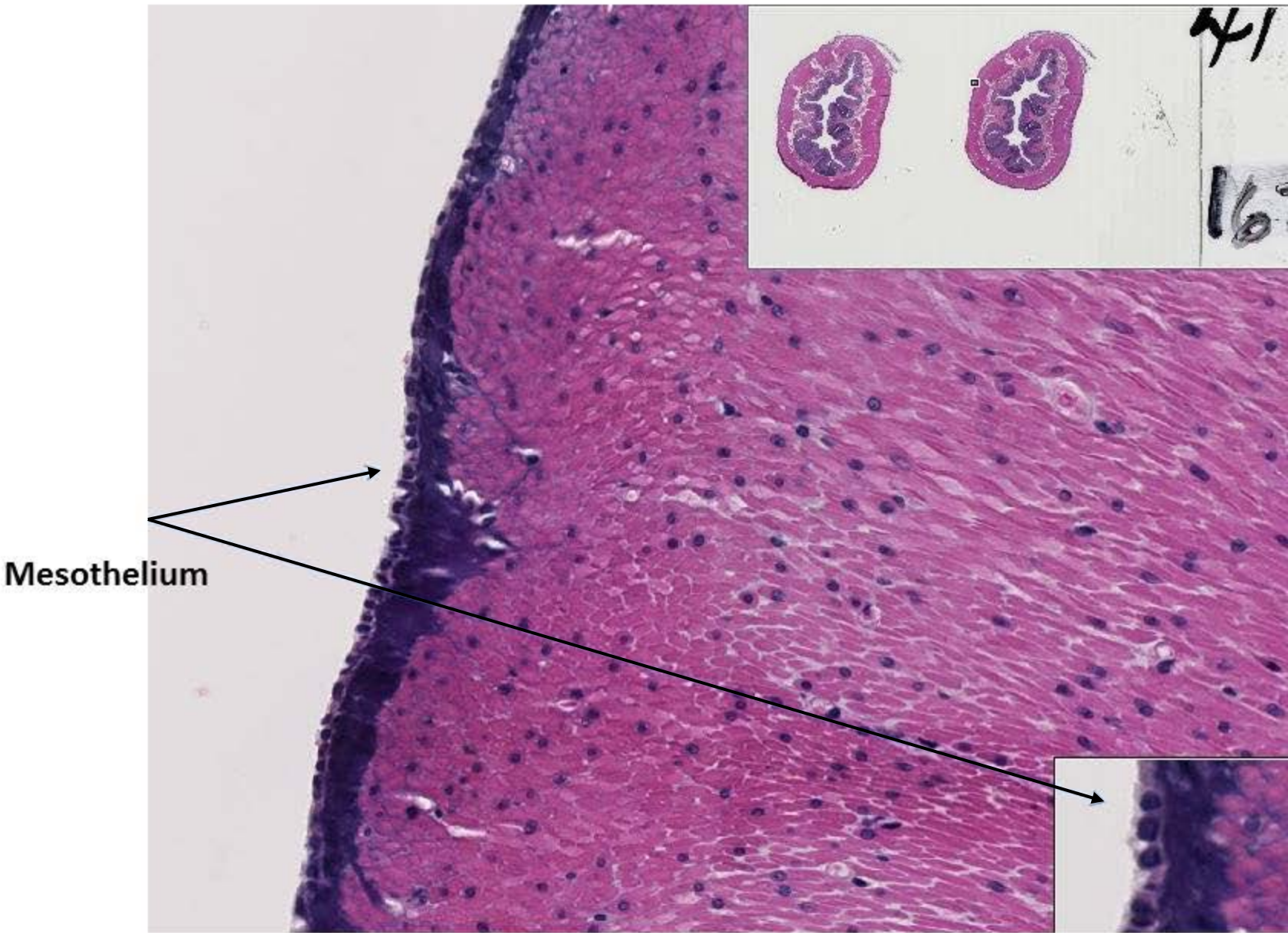


striated border or brush border.

goblet cells



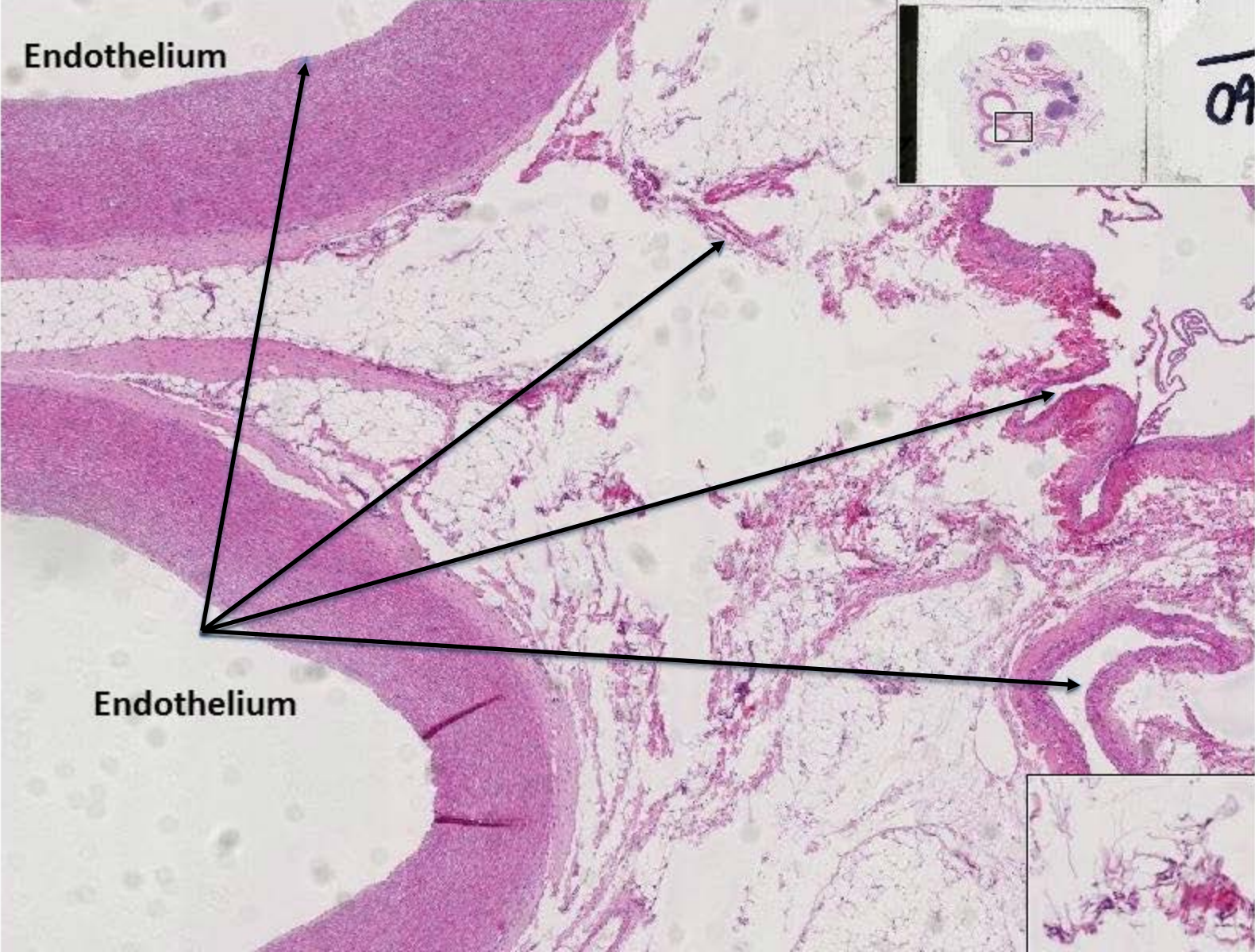
DEMO SLIDE BOX 167 (C003-H-29)–Large intestine, dog.



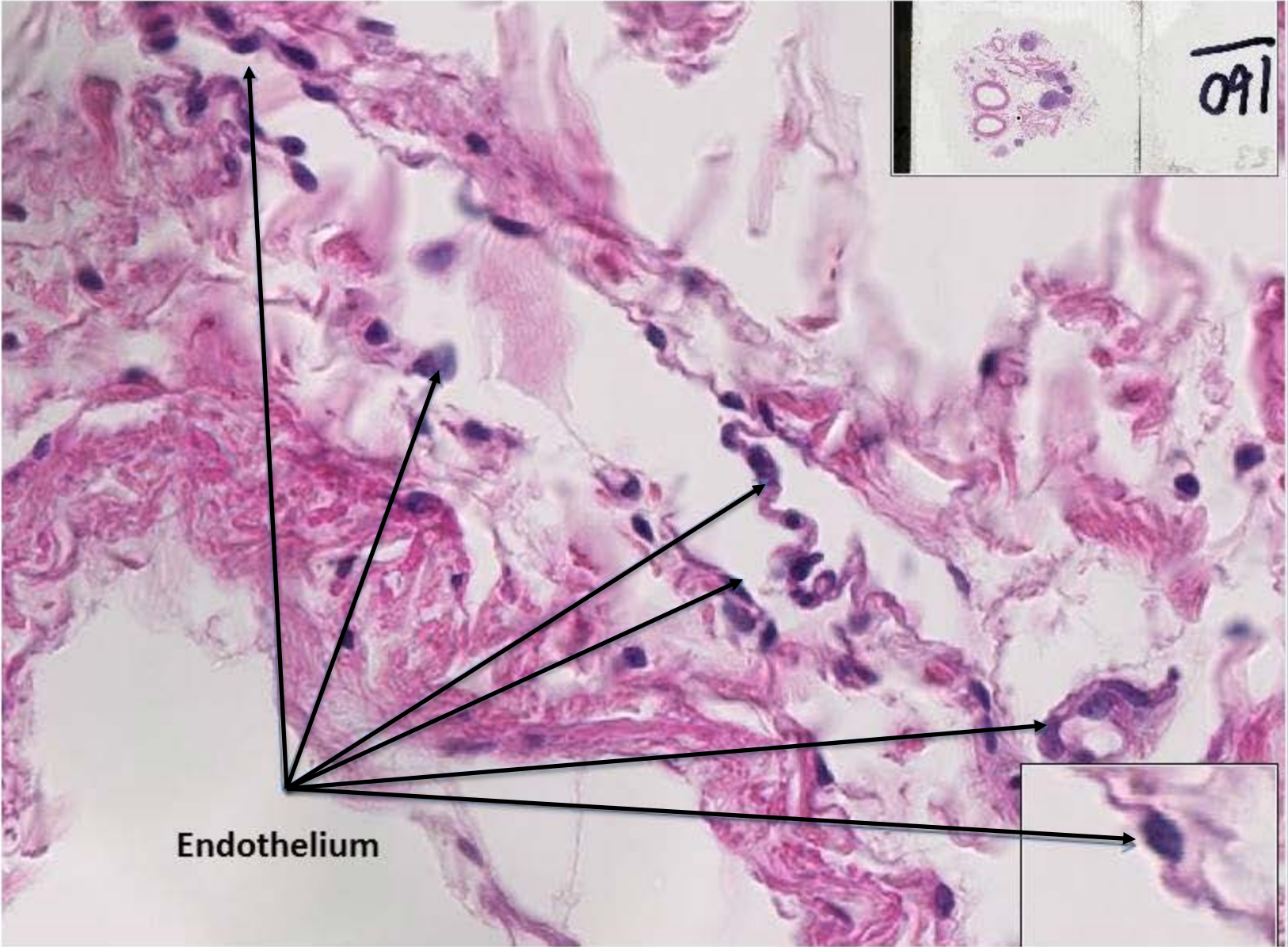
DEMO SLIDE BOX 167 (C003-H-29)–Large intestine, dog.



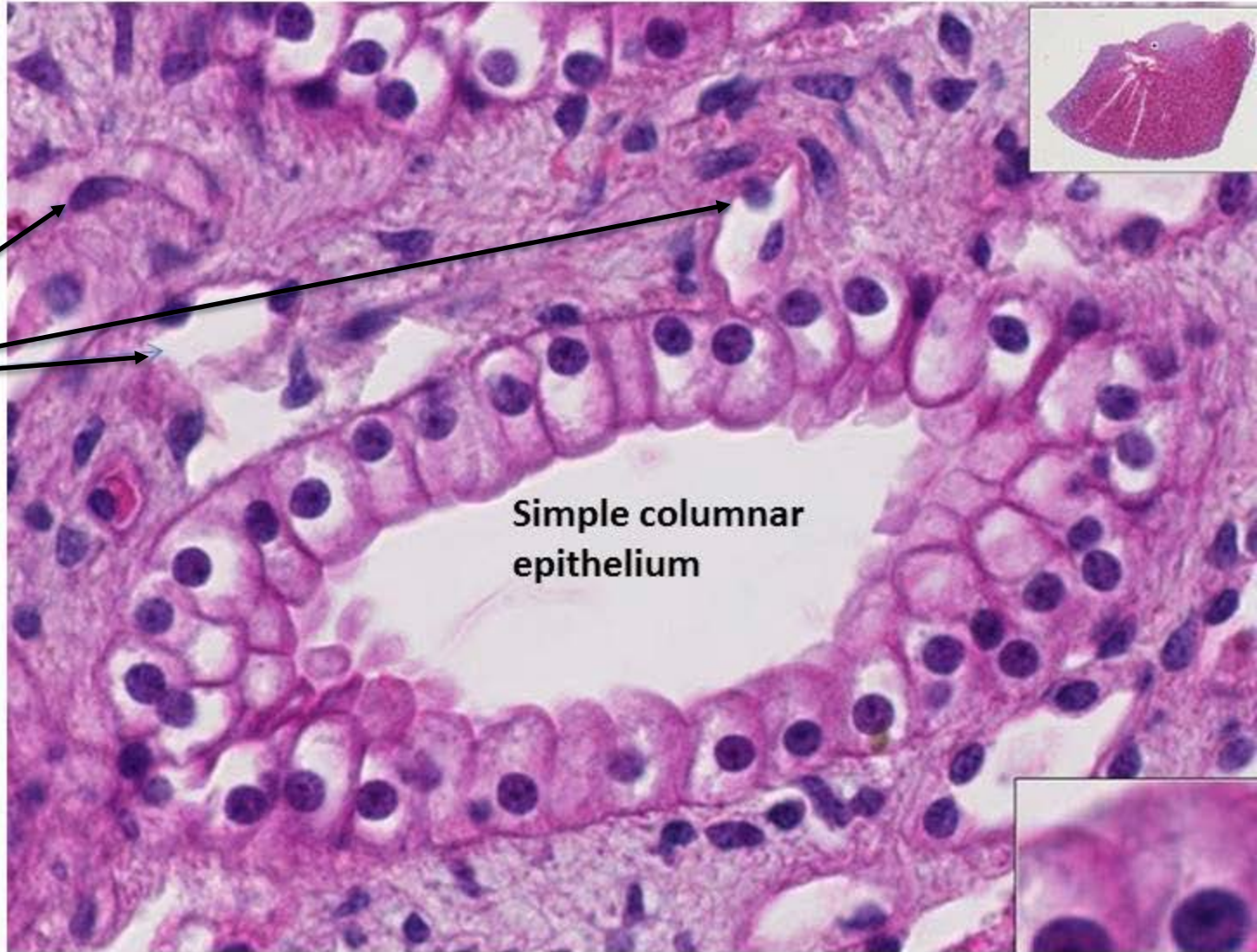
**DEMO SLIDE BOX 160 (1106) –Blood vessels, pig.**



**DEMO SLIDE BOX 160 (1106) –Blood vessels, pig.**



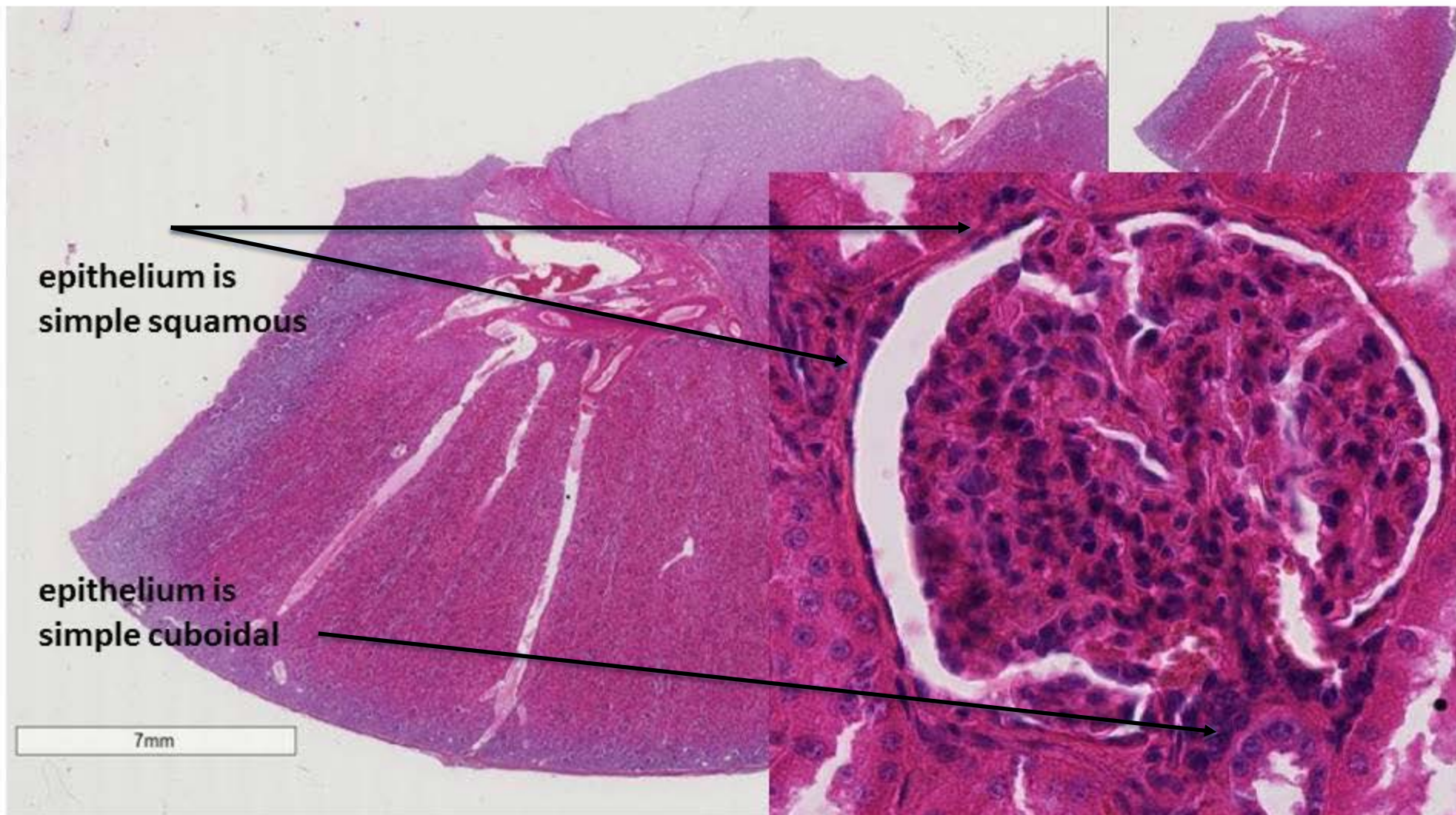
**DEMO SLIDE BOX 172 (450-E001-H-76) –Kidney,**  
**horse.**



epithelium is  
simple squamous

Simple columnar  
epithelium

**DEMO SLIDE BOX 172 (450-E001-H-76) –Kidney,  
horse.**

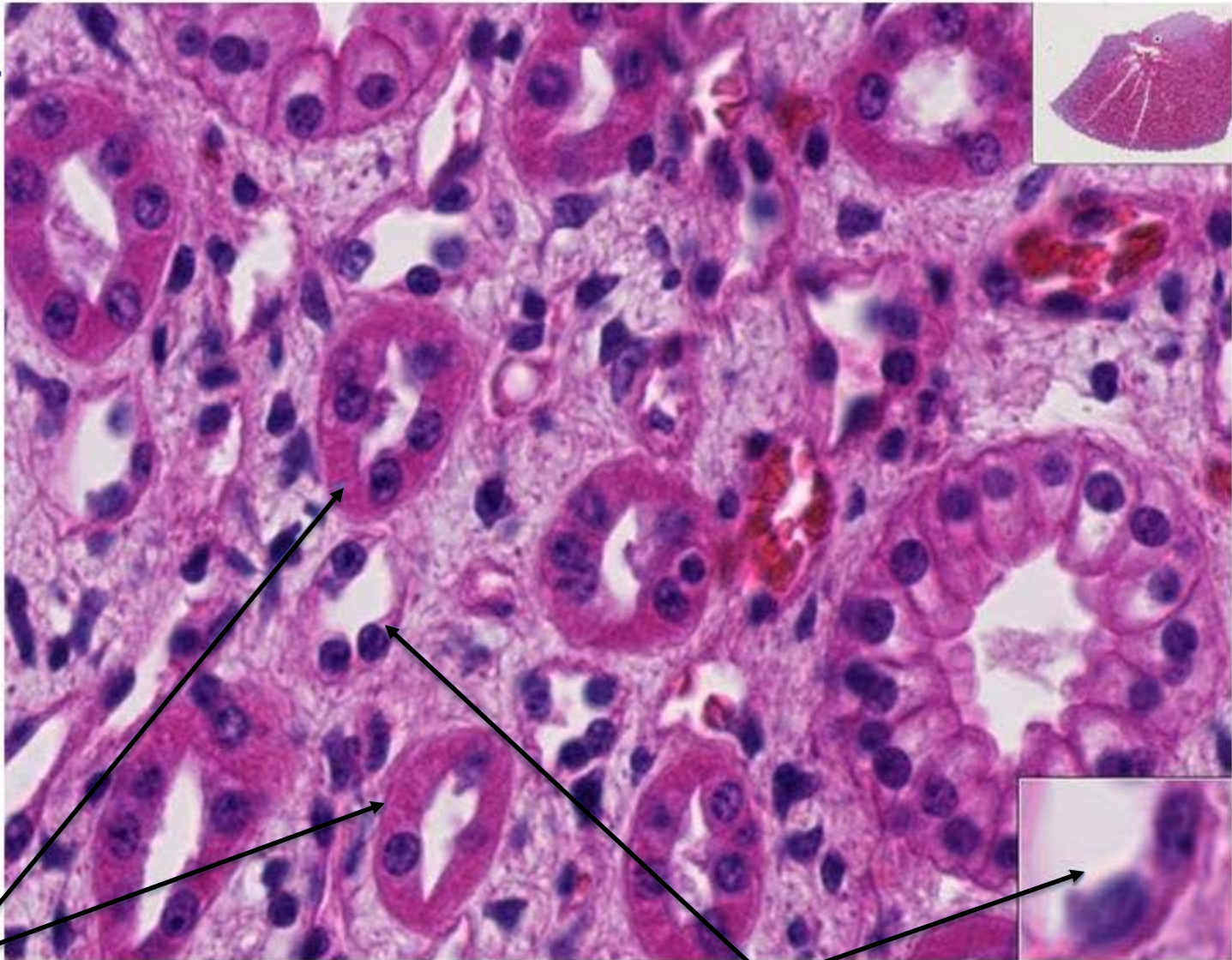


epithelium is  
simple squamous

epithelium is  
simple cuboidal

7mm

**DEMO SLIDE BOX 172 (450-E001-H-76.) –Kidney,  
horse.**



Simple cuboidal

epithelium is simple squamous



Slide #80 (Pfl-122a). Thyroid gland, pig.



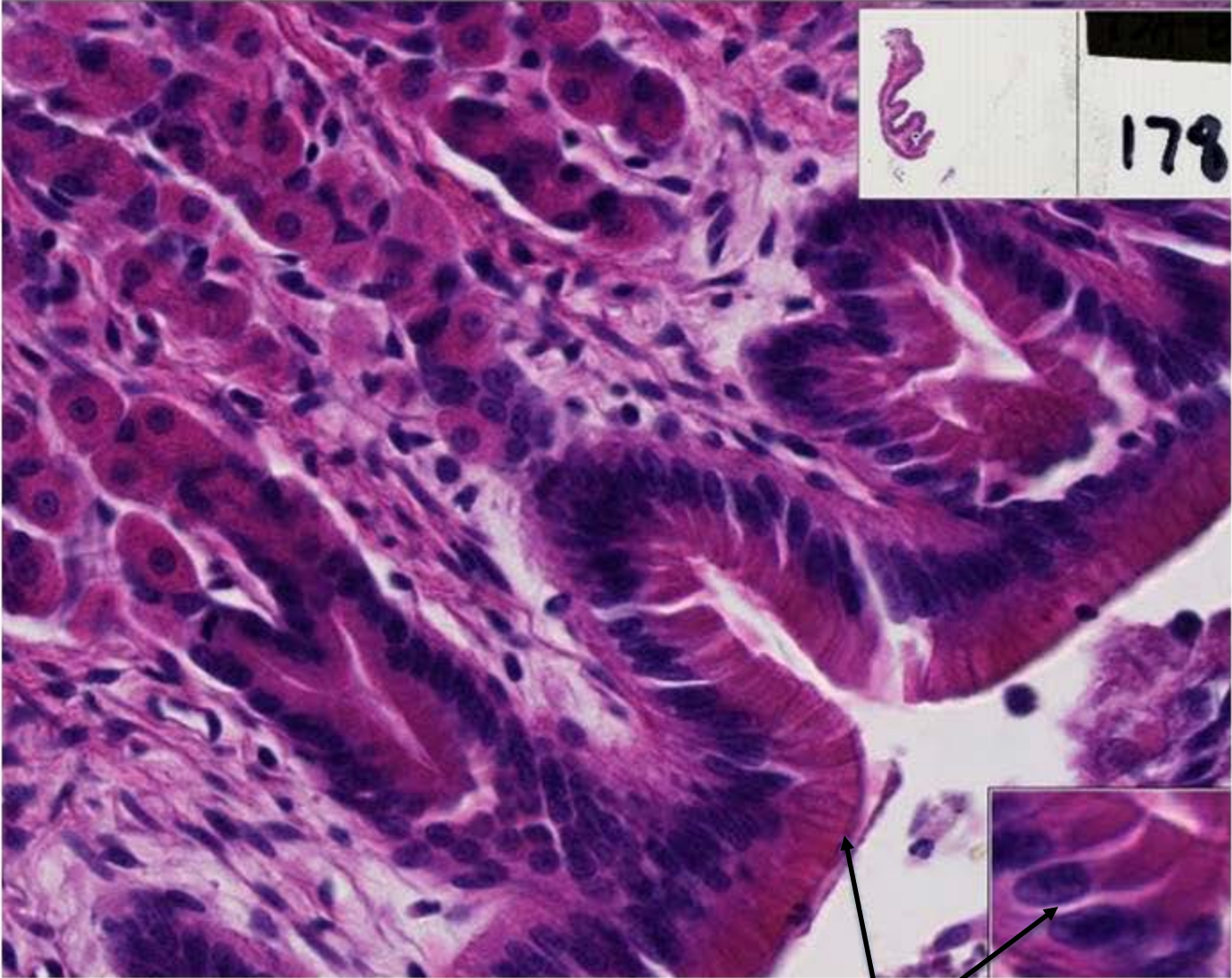
simple cuboidal cells

**Slide #48 (PF5-76B). Liver and gallbladder, dog.**



Simple columnar epithelium

DEMO SLIDE BOX 178 (F-H-143) –Stomach, cat.

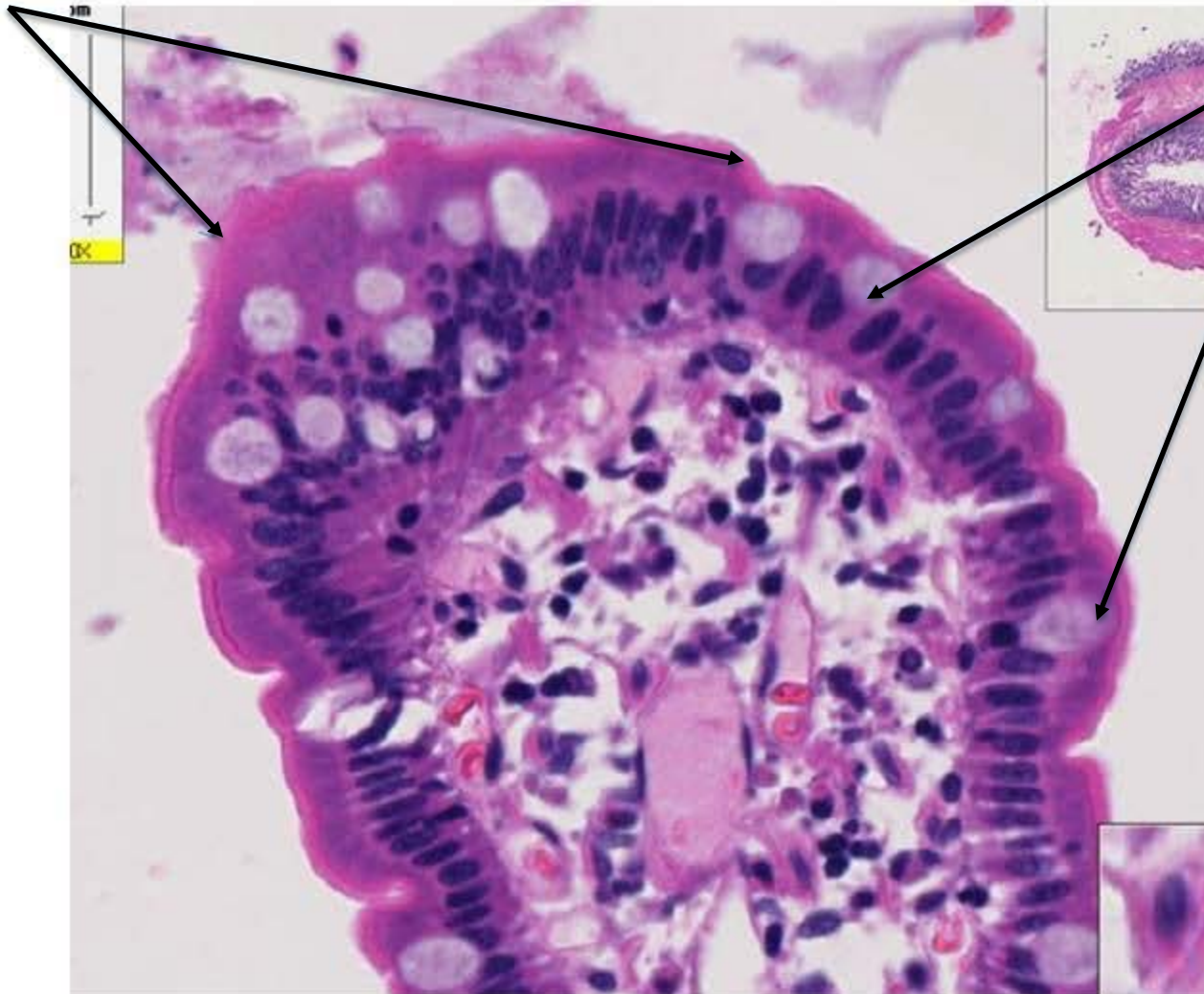


simple columnar epithelium

# DEMO SLIDE BOX 225 (C-H-73)- Small intestine, dog.

striated border or brush border.

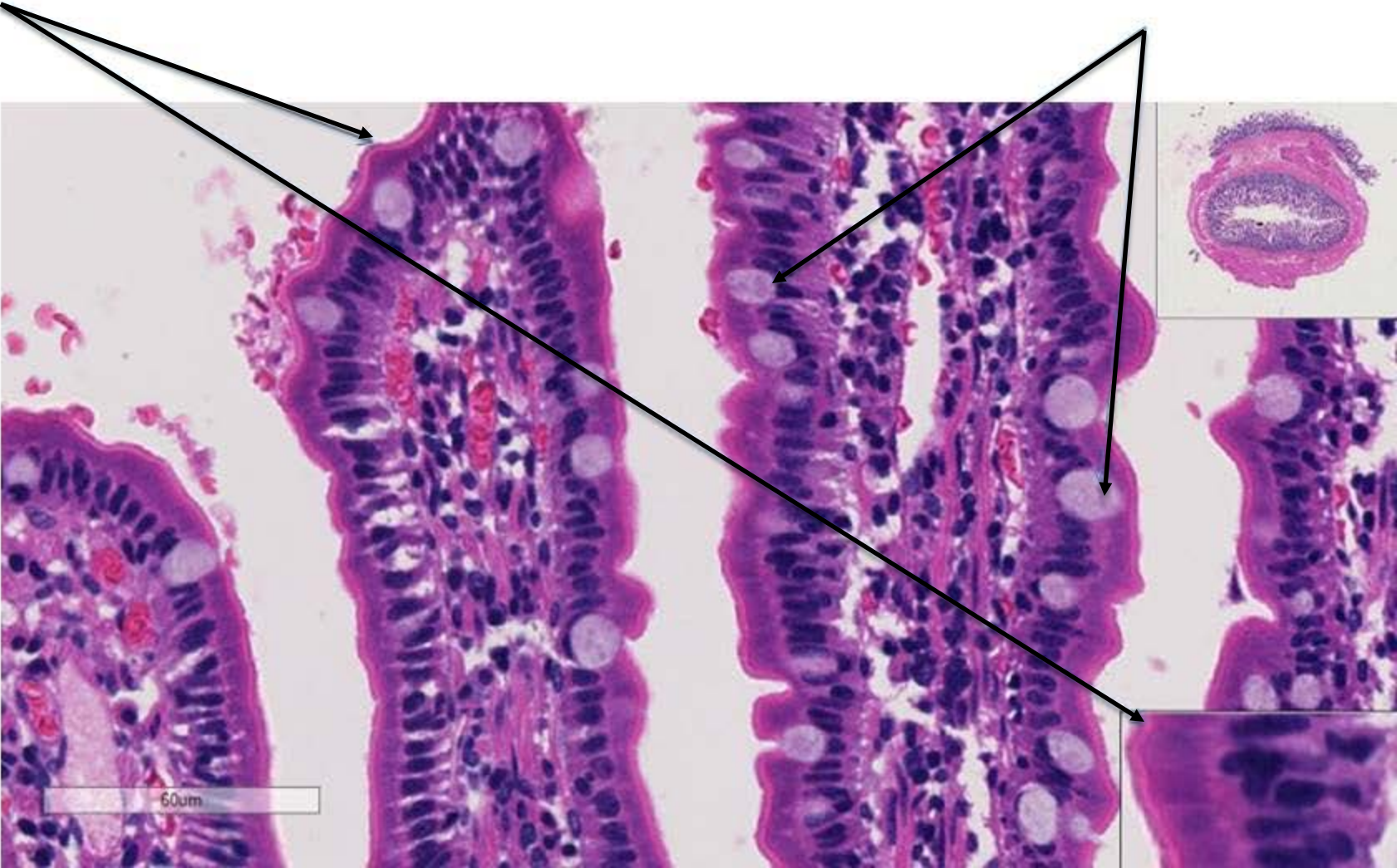
goblet cells



# DEMO SLIDE BOX 225 (C-H-73)- Small intestine, dog.

striated border or brush border.

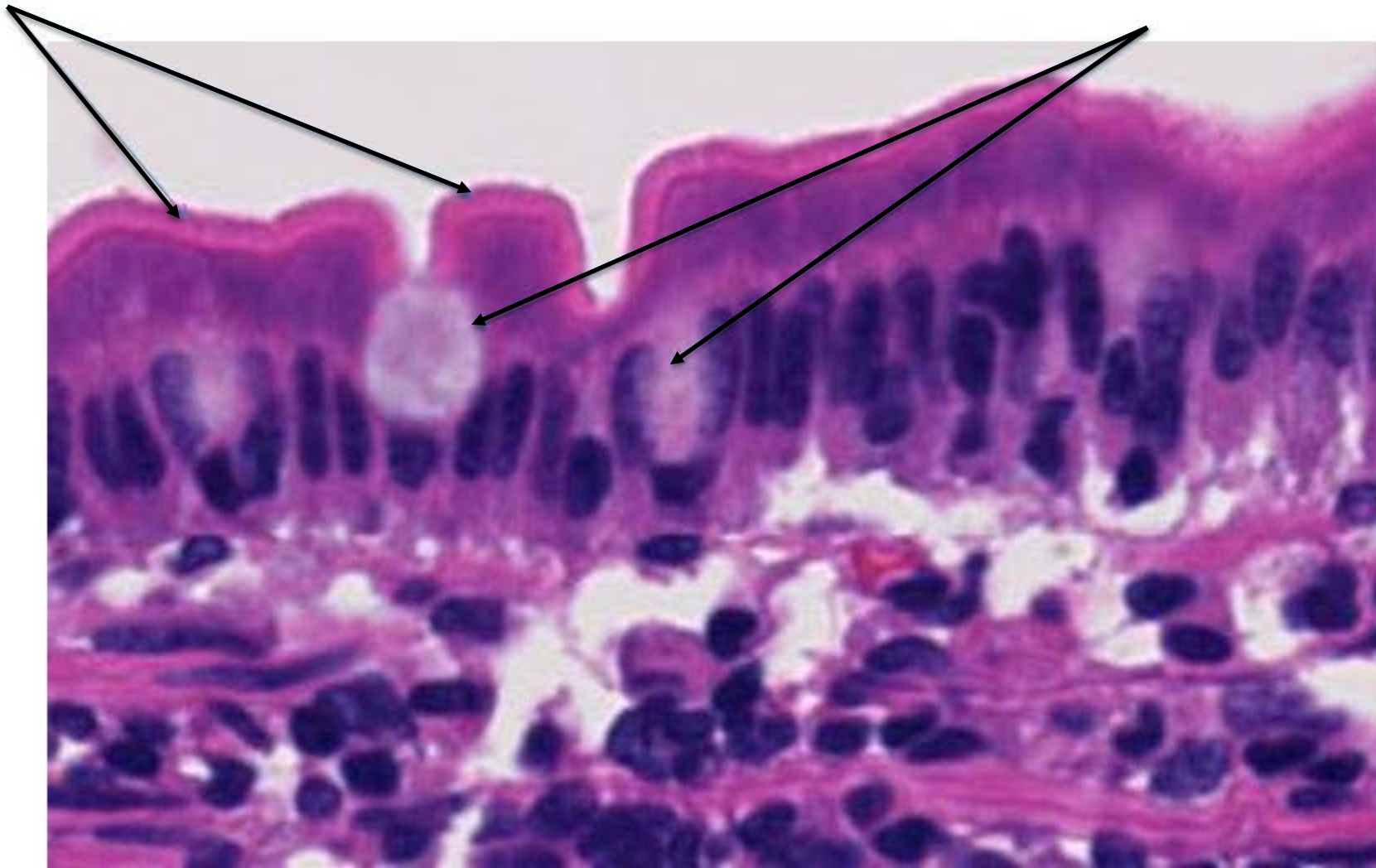
goblet cells



# DEMO SLIDE BOX 225 (C-H-73)- Small intestine, dog.

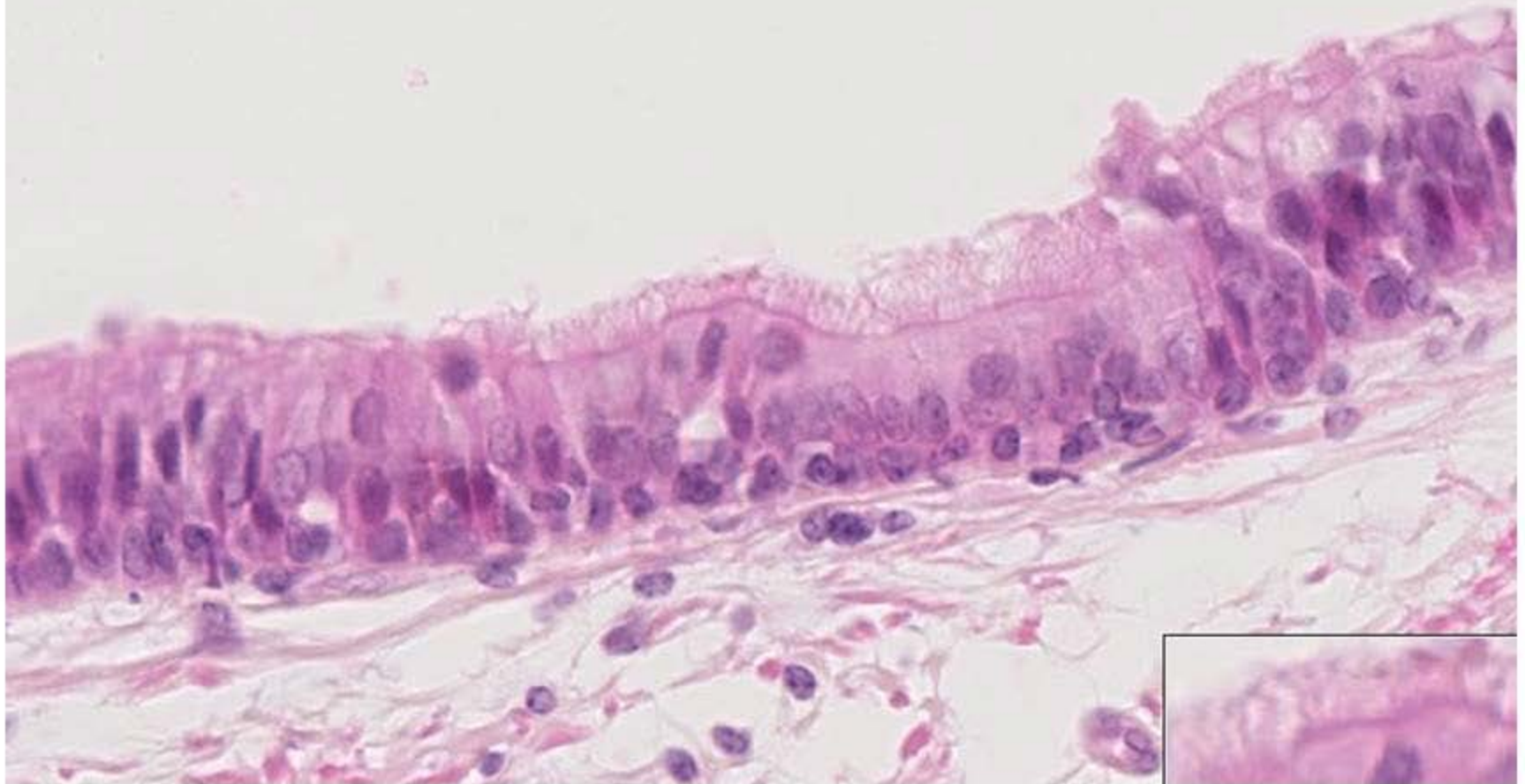
striated border or brush border.

goblet cells

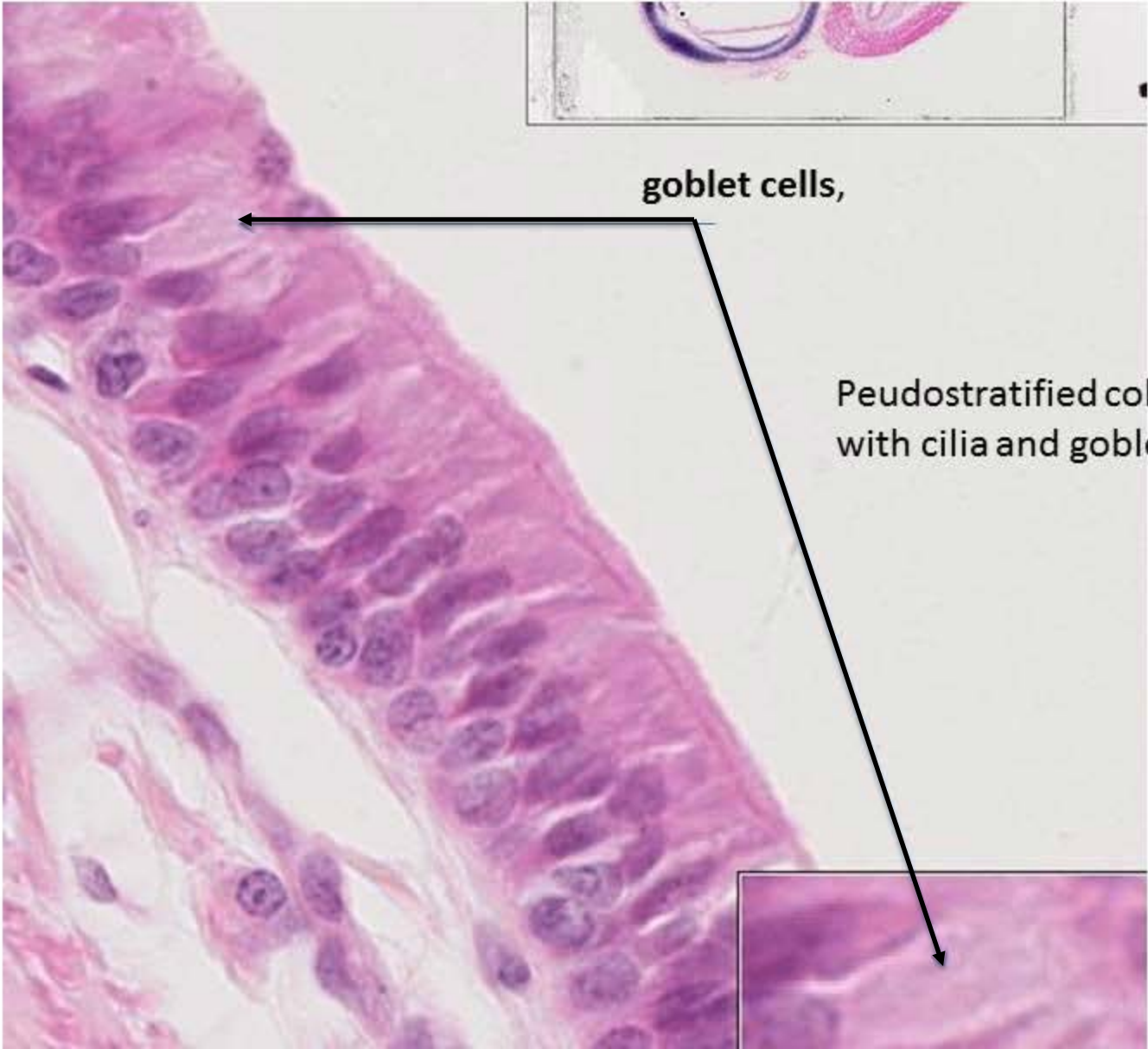


**Slide #71 (Pf5-73/205). Trachea and esophagus, pig.**

Pseudostratified columnar epithelium



**Slide #71 (Pf5-73/205). Trachea and esophagus, pig.**



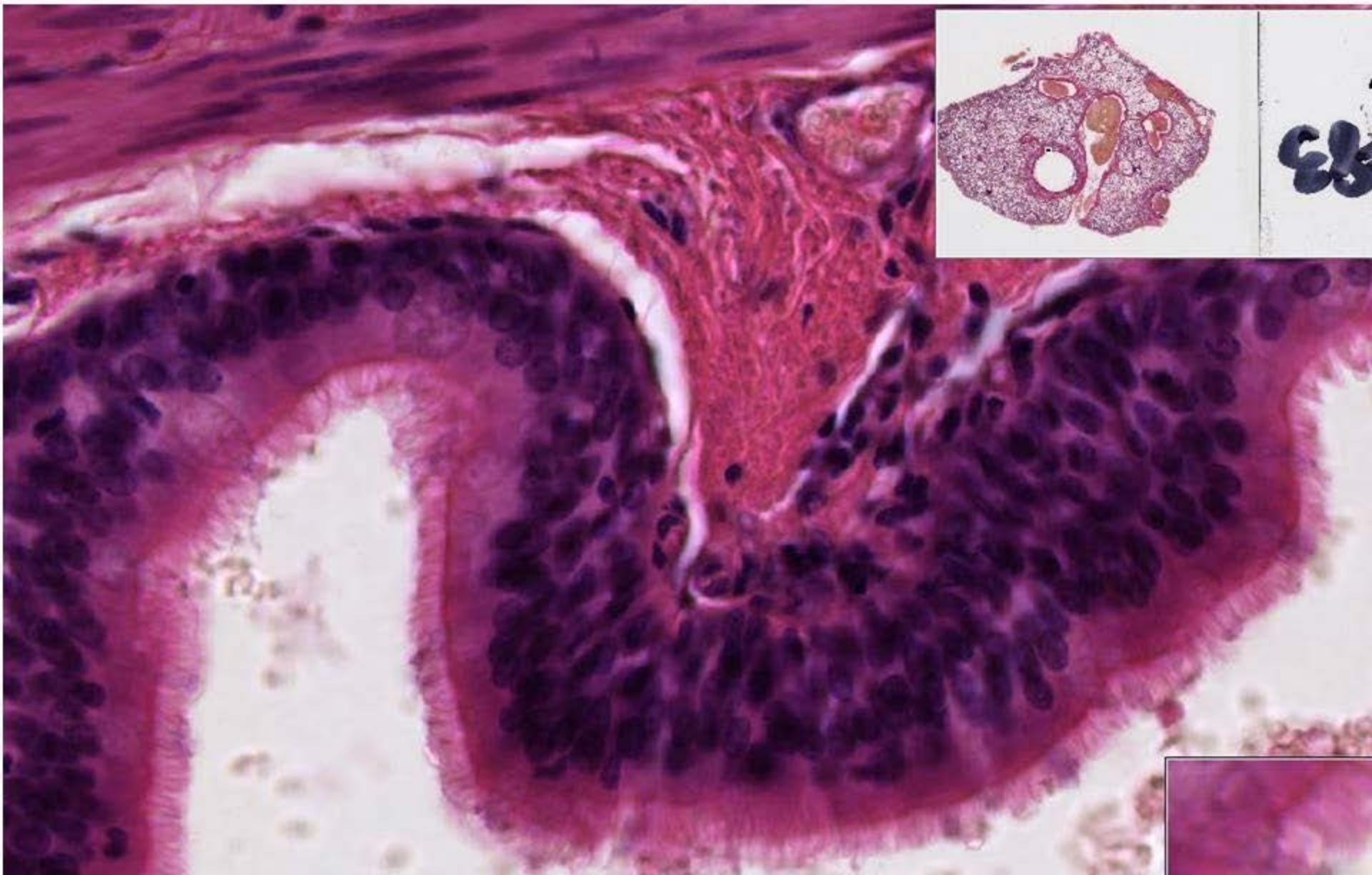
goblet cells,

Pseudostratified columnar  
with cilia and goblet cells)



# DEMO SLIDE BOX 83 – Lung, horse.

pseudostratified columnar epithelium.



# DEMO SLIDE BOX 224 (641) – Epididymis, boar.

107 box B

pseudostratified columnar epithelium,

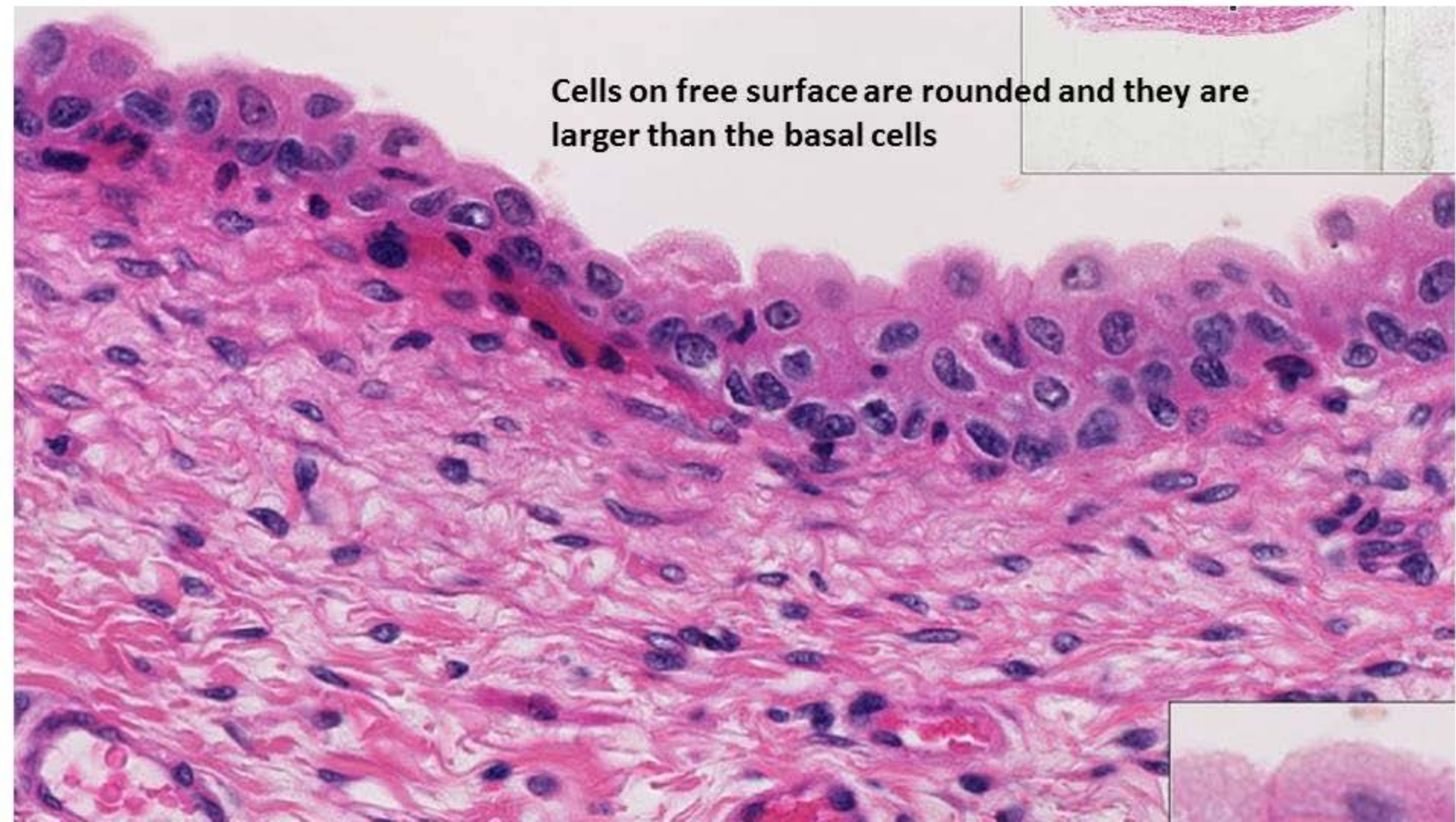
stereocilia



## Slide #54 (Dog1-214c). Urinary bladder, dog.

### Transitional epithelium

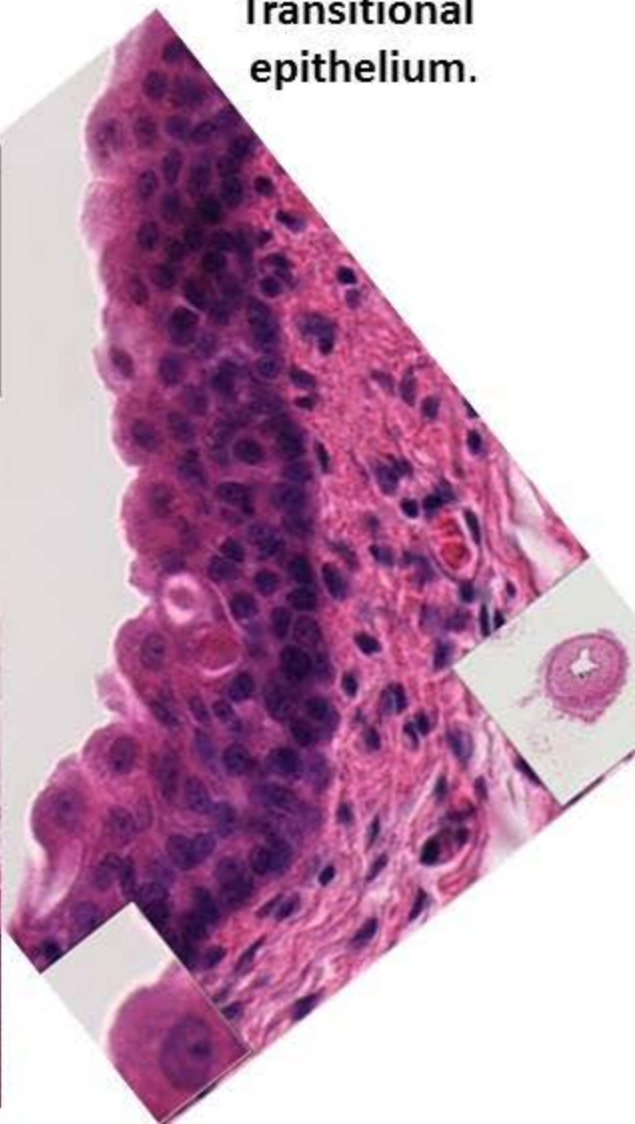
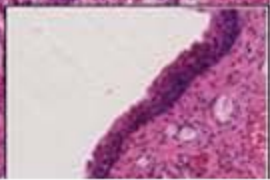
Cells on free surface are rounded and they are larger than the basal cells



Demo Slide 222 (C-H-168,169).

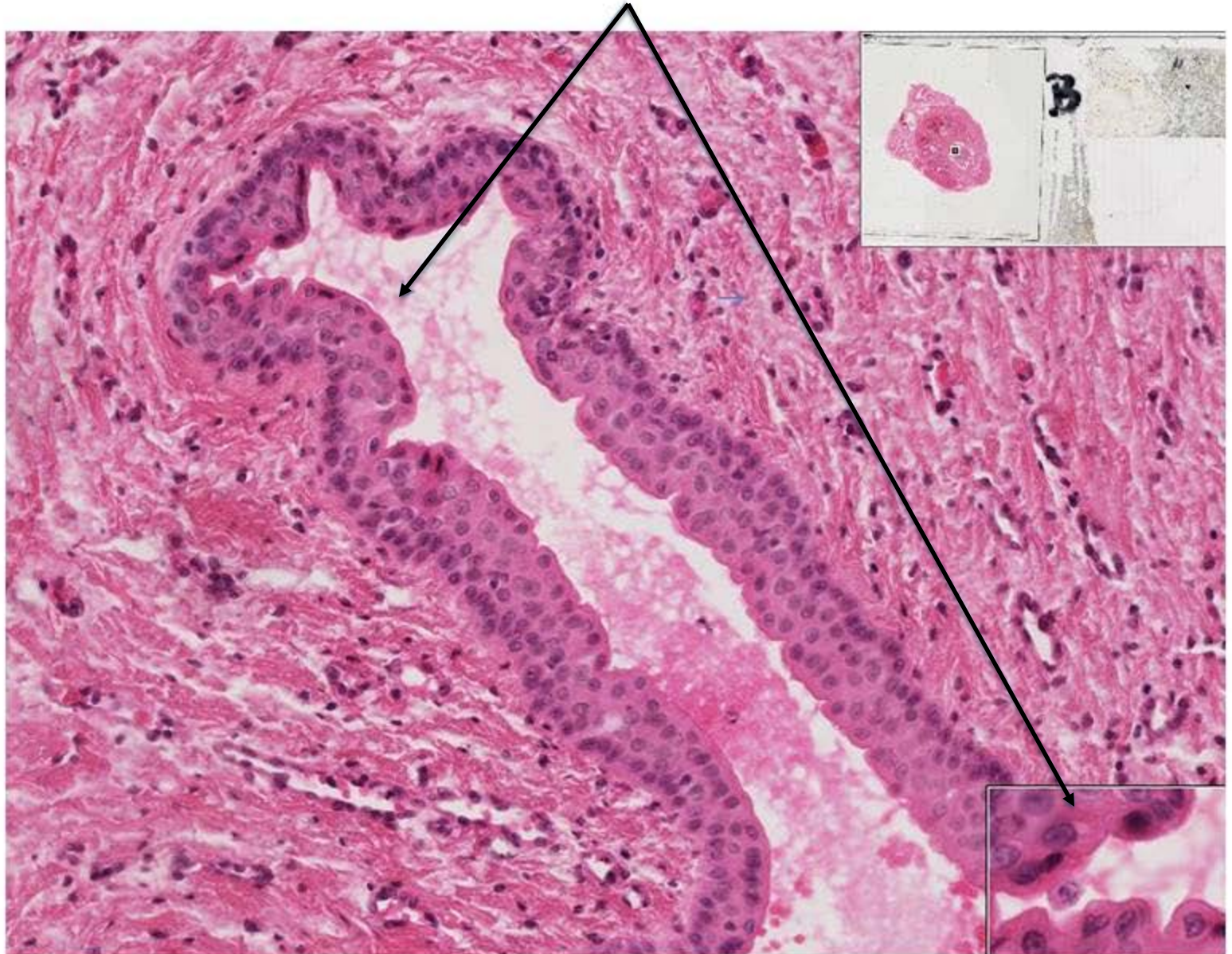
Ureter, dog.

Transitional  
epithelium.



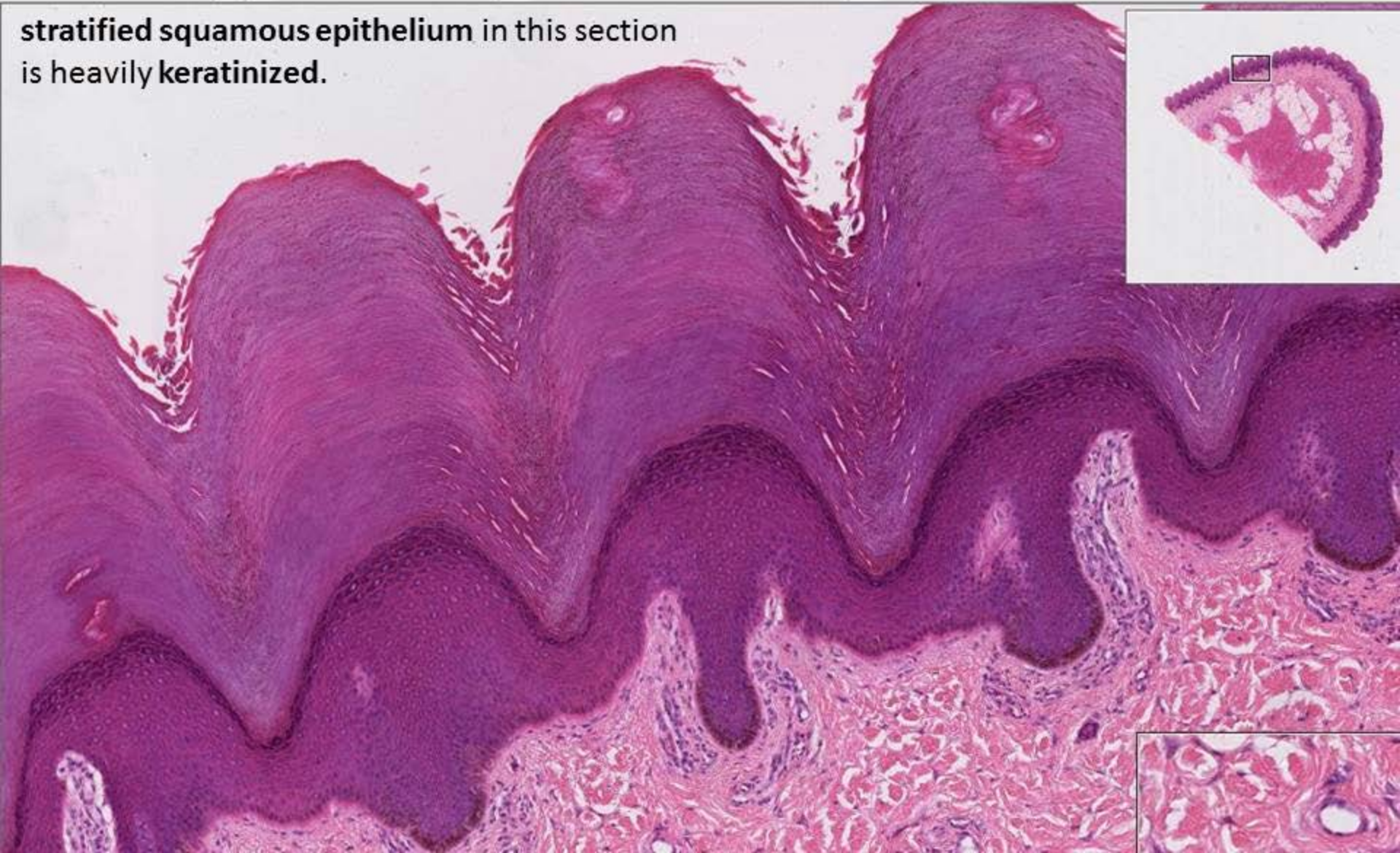
# DEMO BOX 107 – Penis, dog.

Urethra has transitional epithelium.



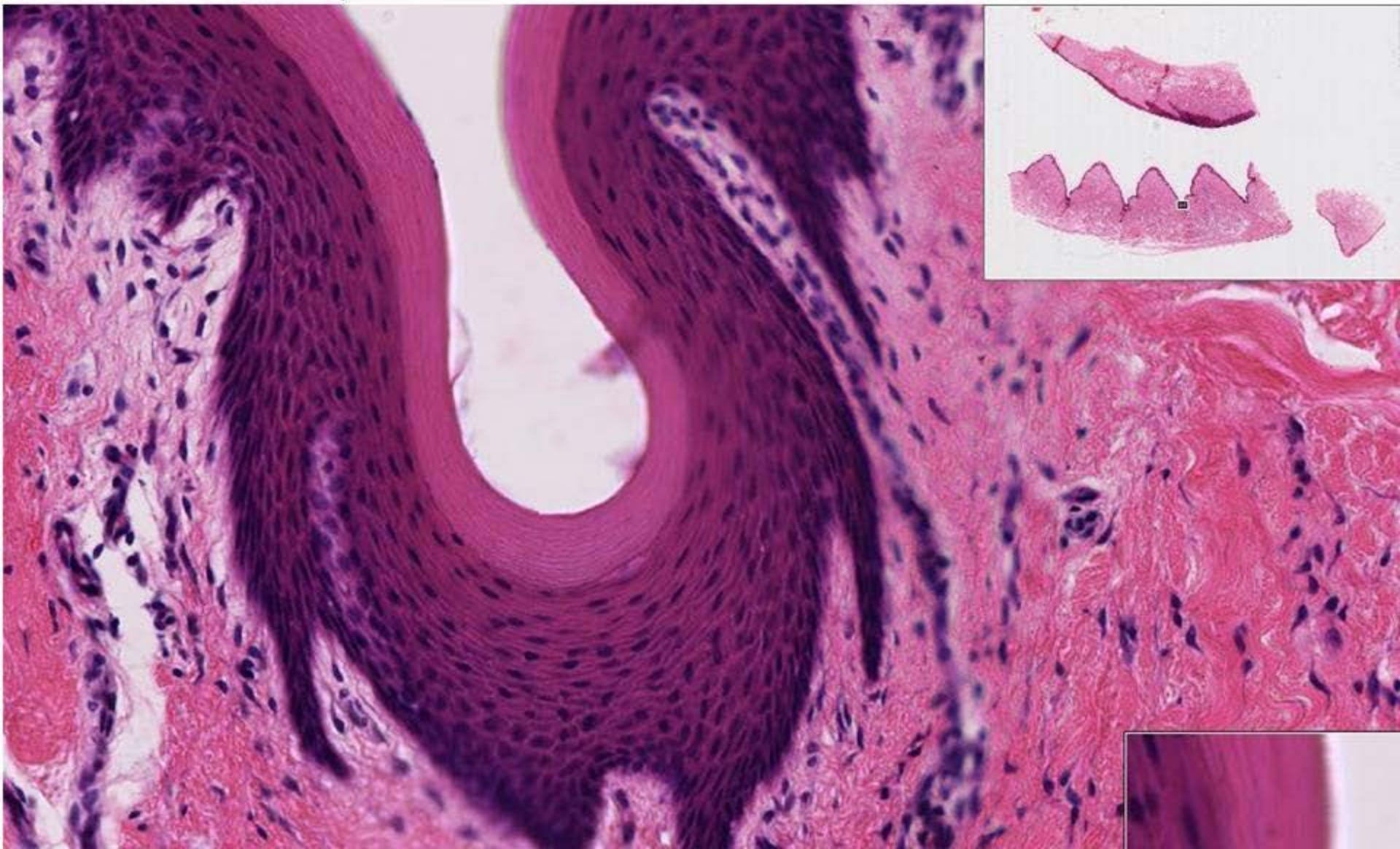
## Slide #10 (926). Skin, monkey.

stratified squamous epithelium in this section  
is heavily keratinized.



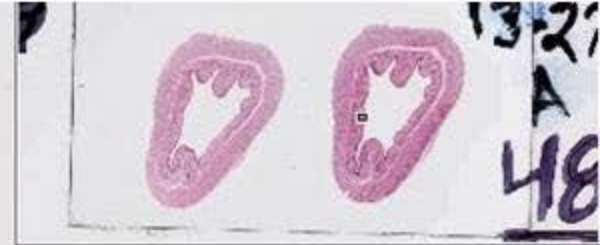
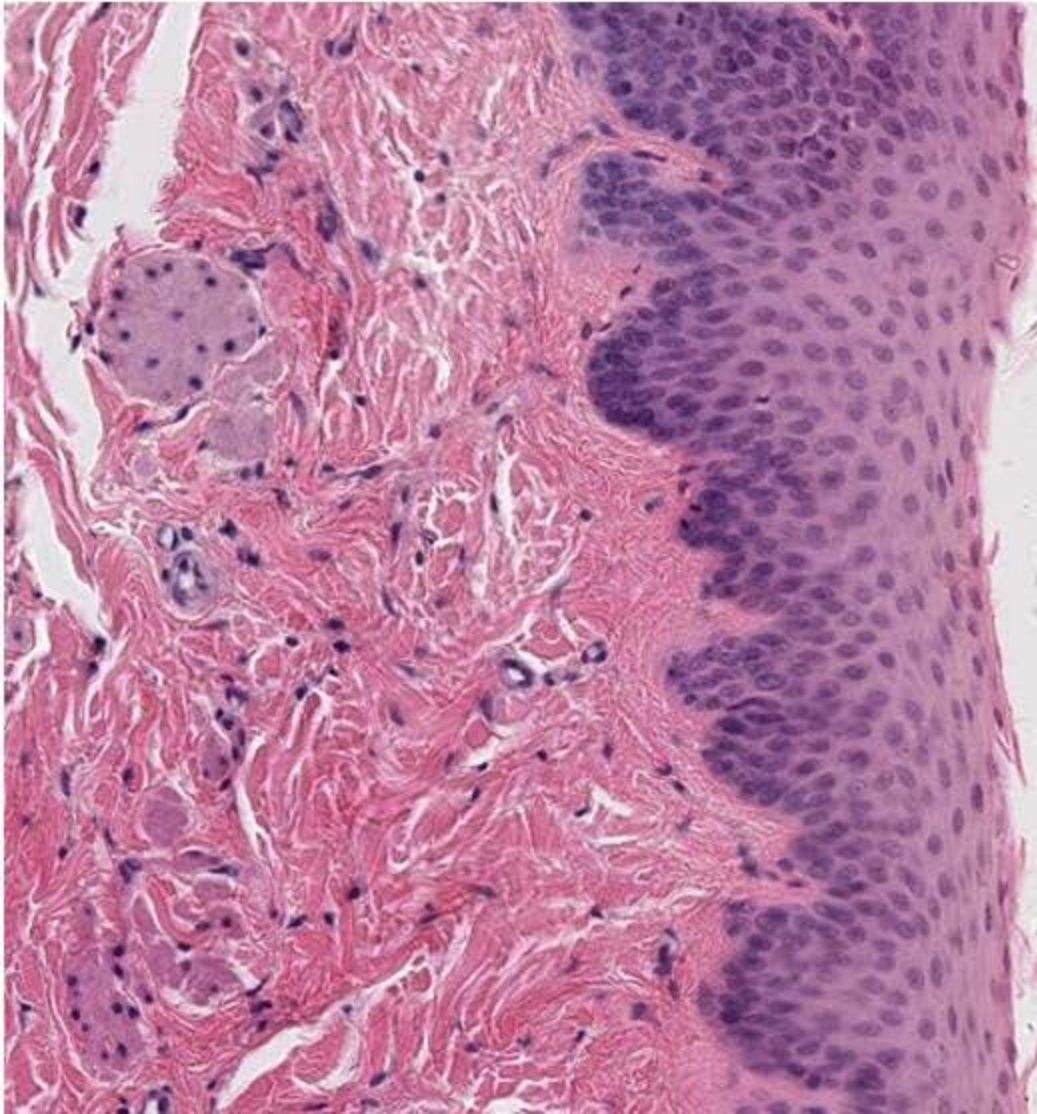
## Slide #24 (822/820). Hard palate, pig.

stratified squamous epithelium in this section  
is also keratinized,



# DEMO SLIDE BOX 48 –Esophagus, dog.

stratified squamous epithelium    non-keratinized



stratified squamous epithelium  
lining the lumen is non-keratinized

Nuclei of apical (superficial cells)  
are flattened while the deeper  
cells have round nuclei. The basal  
cells are also round or cuboidal





# DEMO SLIDE BOX 183 (BV-1-85A) –Salivary gland,

## COW.

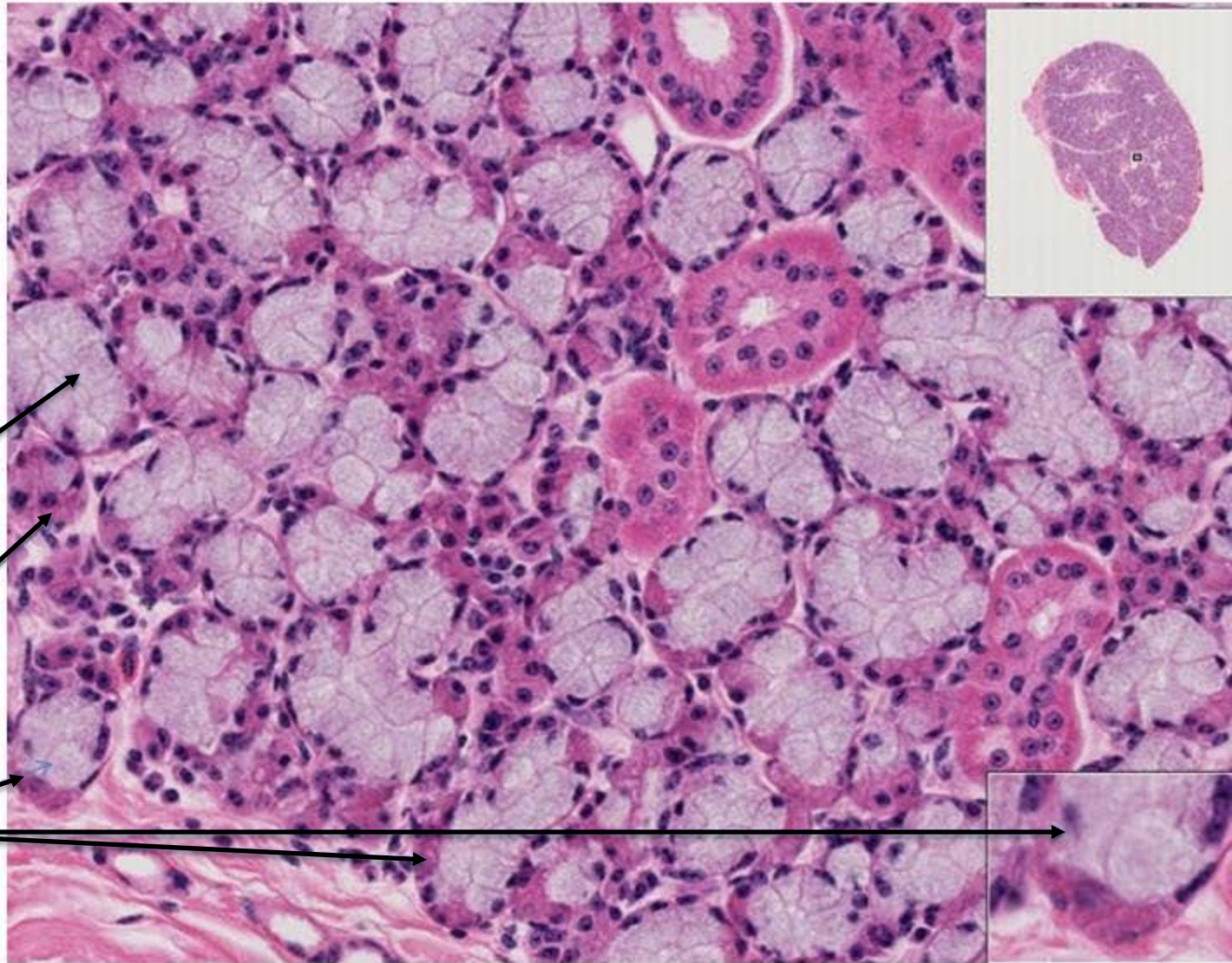
Stratified columnar  
or  
cuboidal epithelium

Mixed glands

Mucus cells

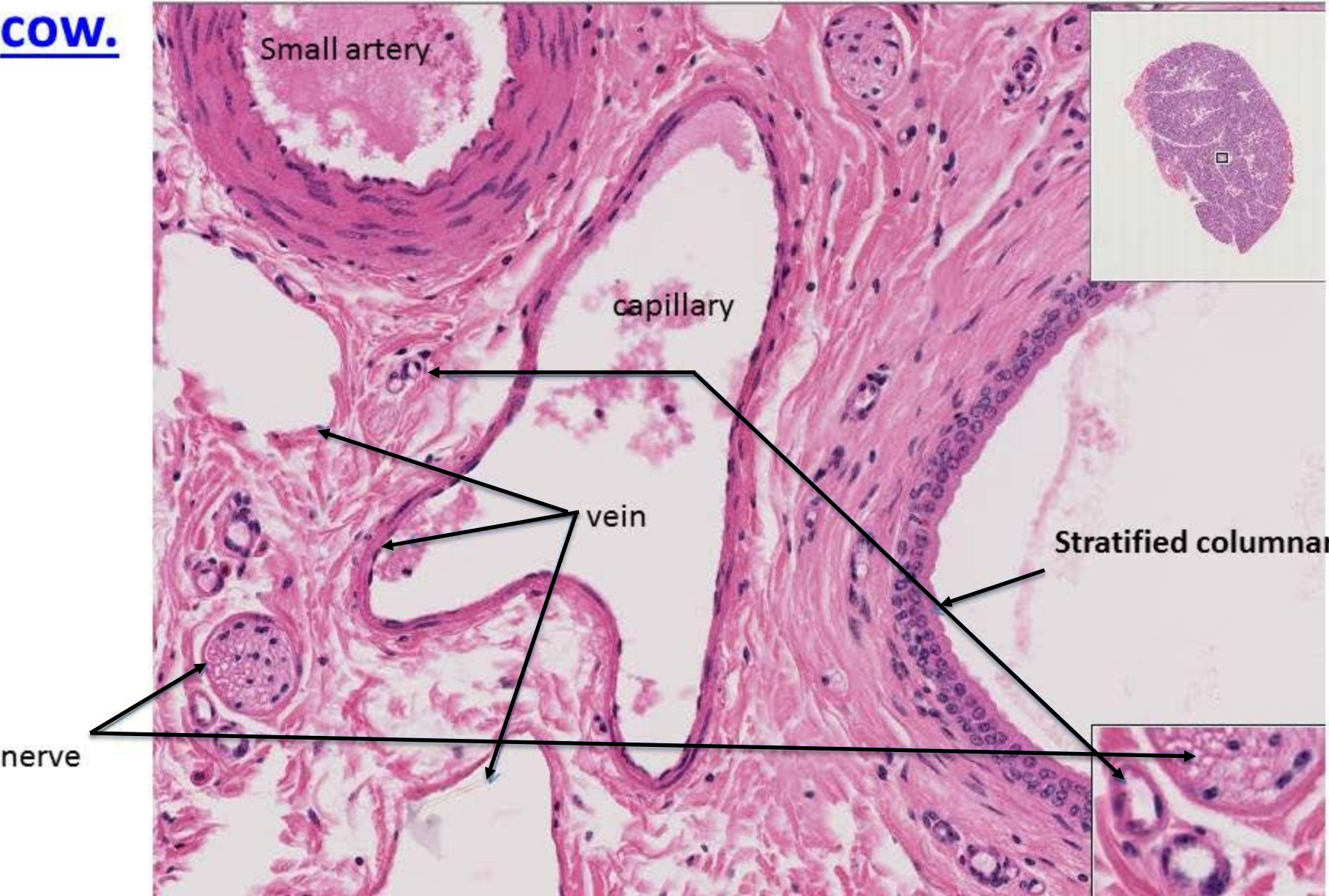
Serous cells

Serous Demilunes



**DEMO SLIDE BOX 183 (BV-1-85A) –Salivary gland,**

**COW.**



# Slide #78 (1057). Pancreas, cat.

Simple columnar



acini (singular = acinus)

Serous

**DEMO SLIDE BOX 162 (C003-H113BC007H88 F001-H-146)–Salivary glands, dog.**

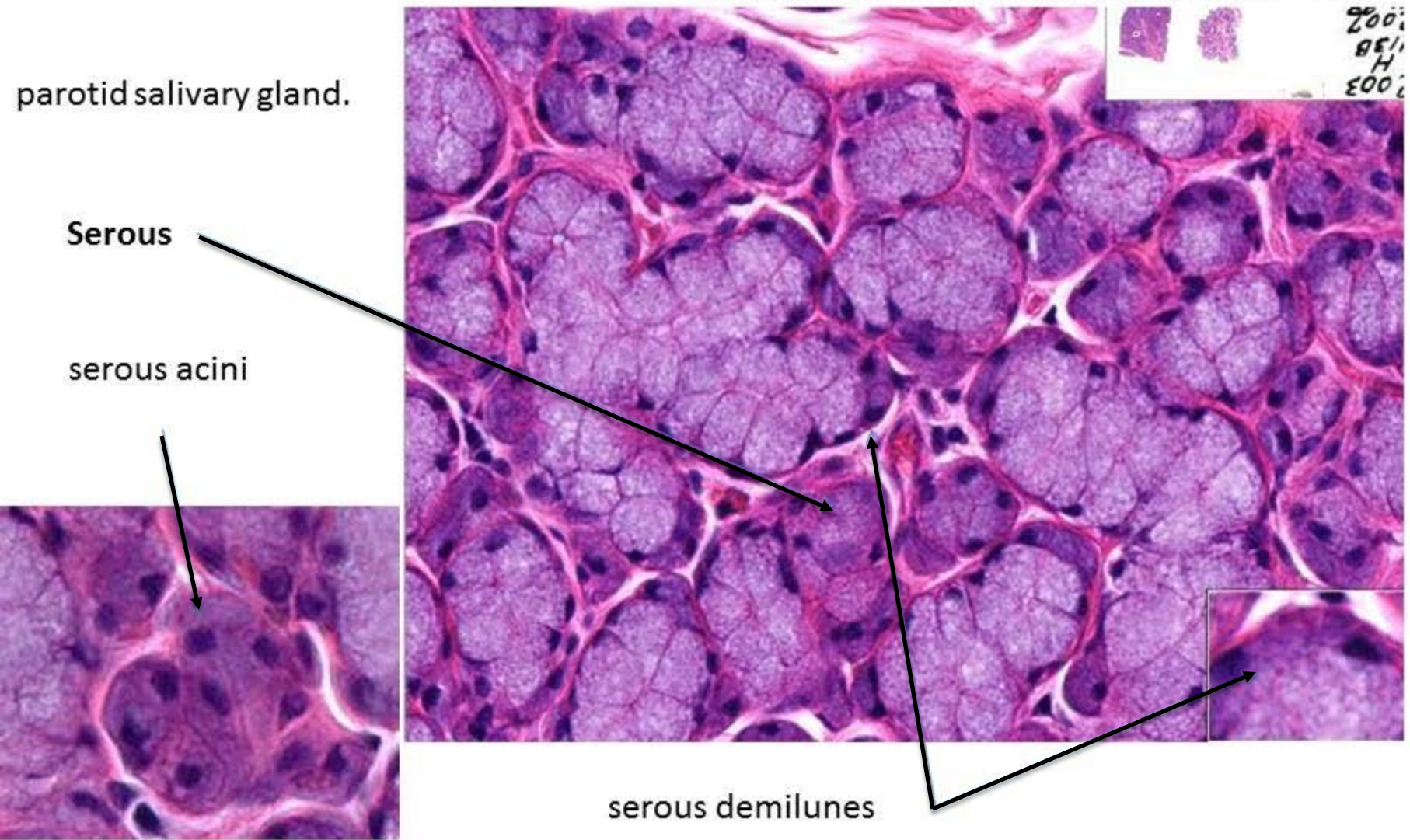
*First look at the tissue section on the far LEFT*

parotid salivary gland.

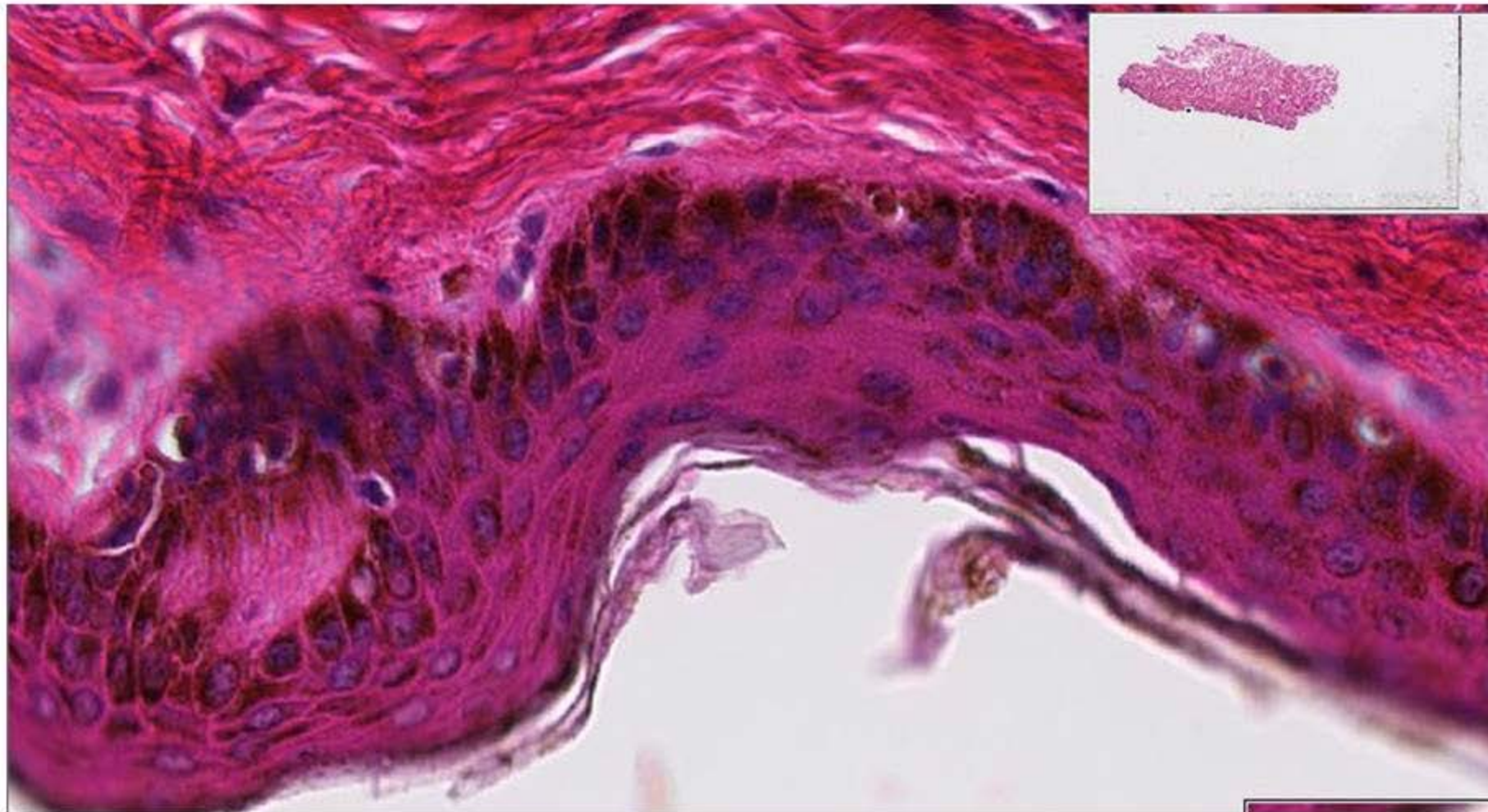
Serous

serous acini

serous demilunes

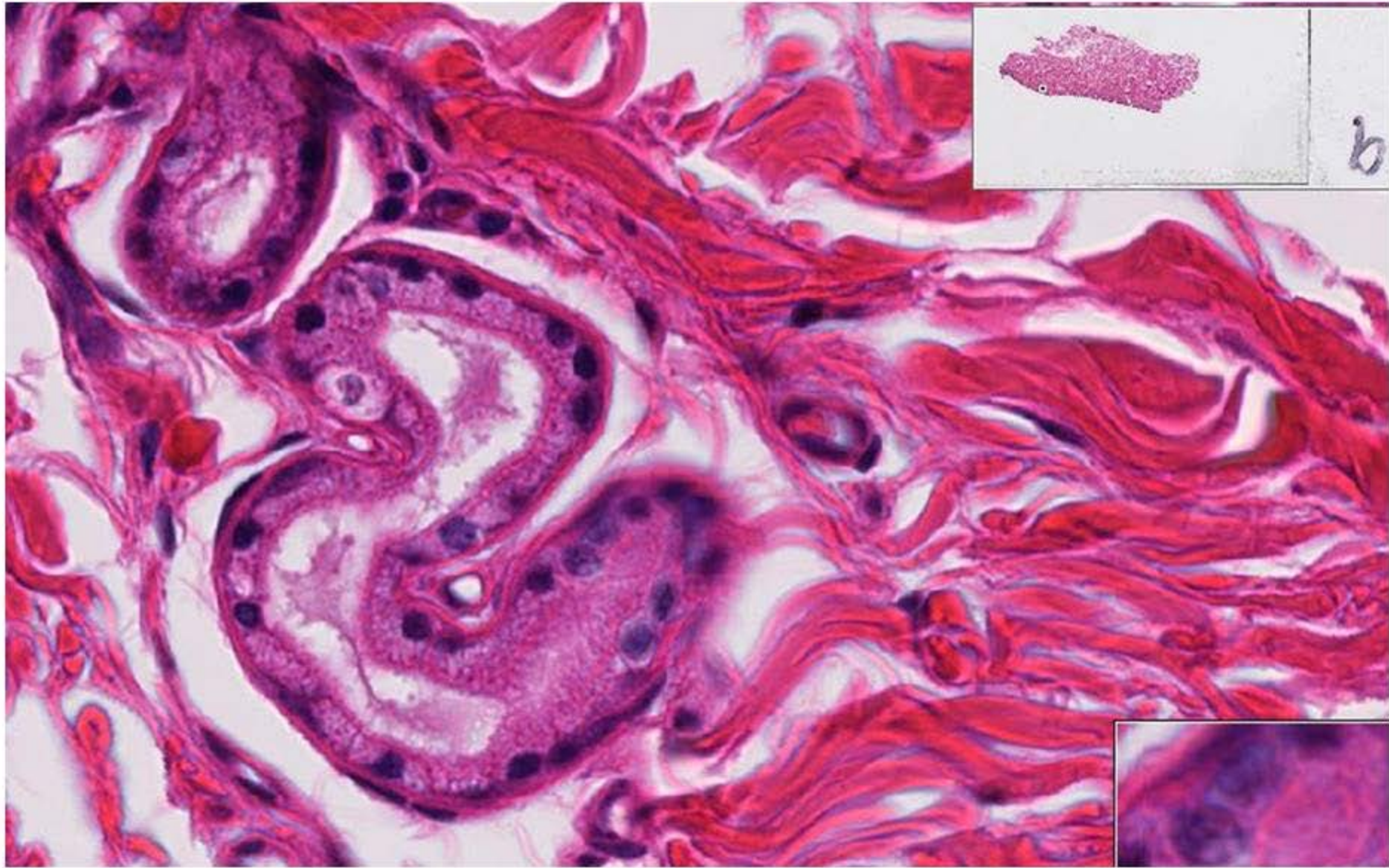


Slide #19 (449E001-H-132). Skin, horse.



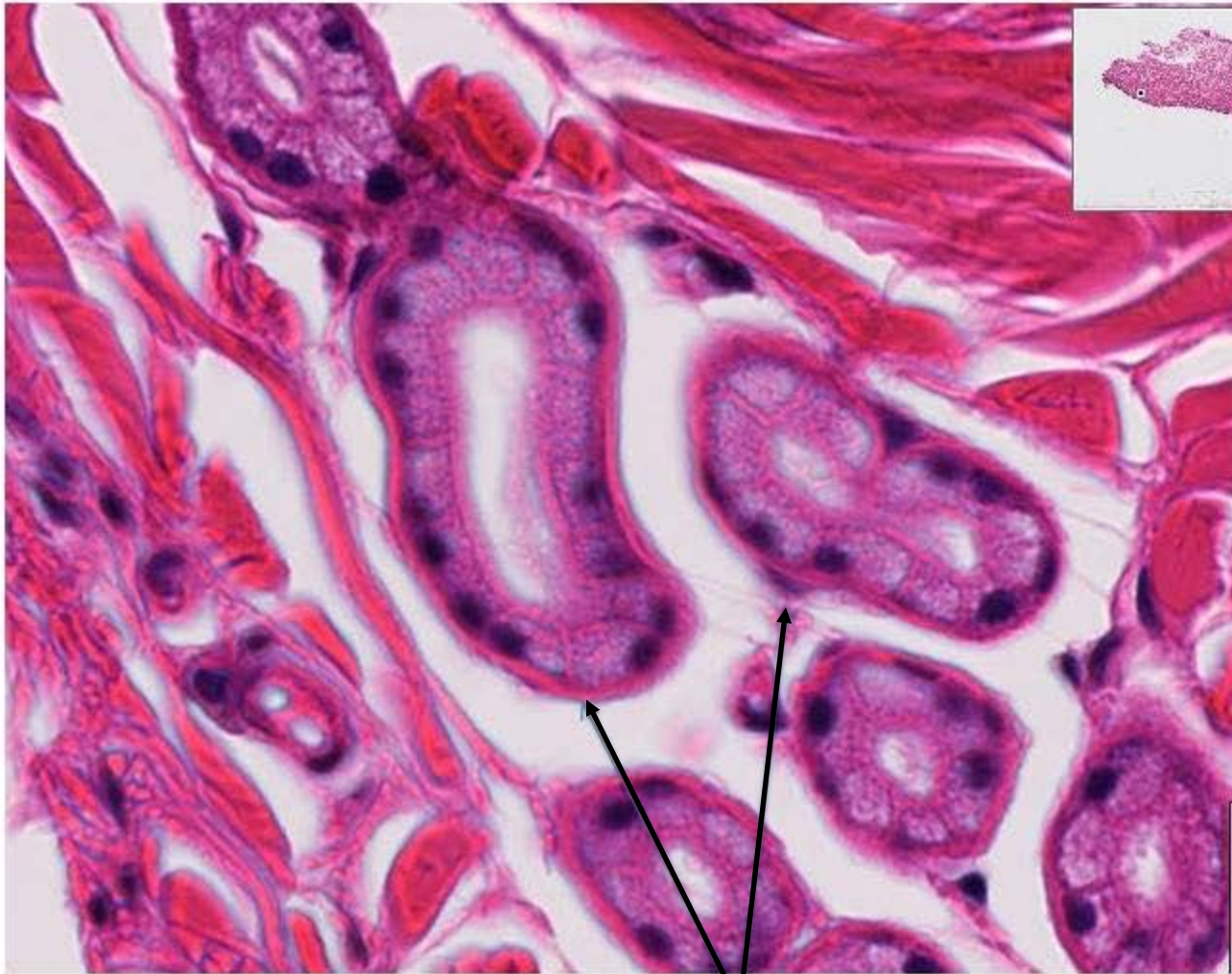
**Keratinized stratified squamous**

**Slide #19 (449E001-H-132). Skin, horse.**



**Simple cuboidal sweat gland**

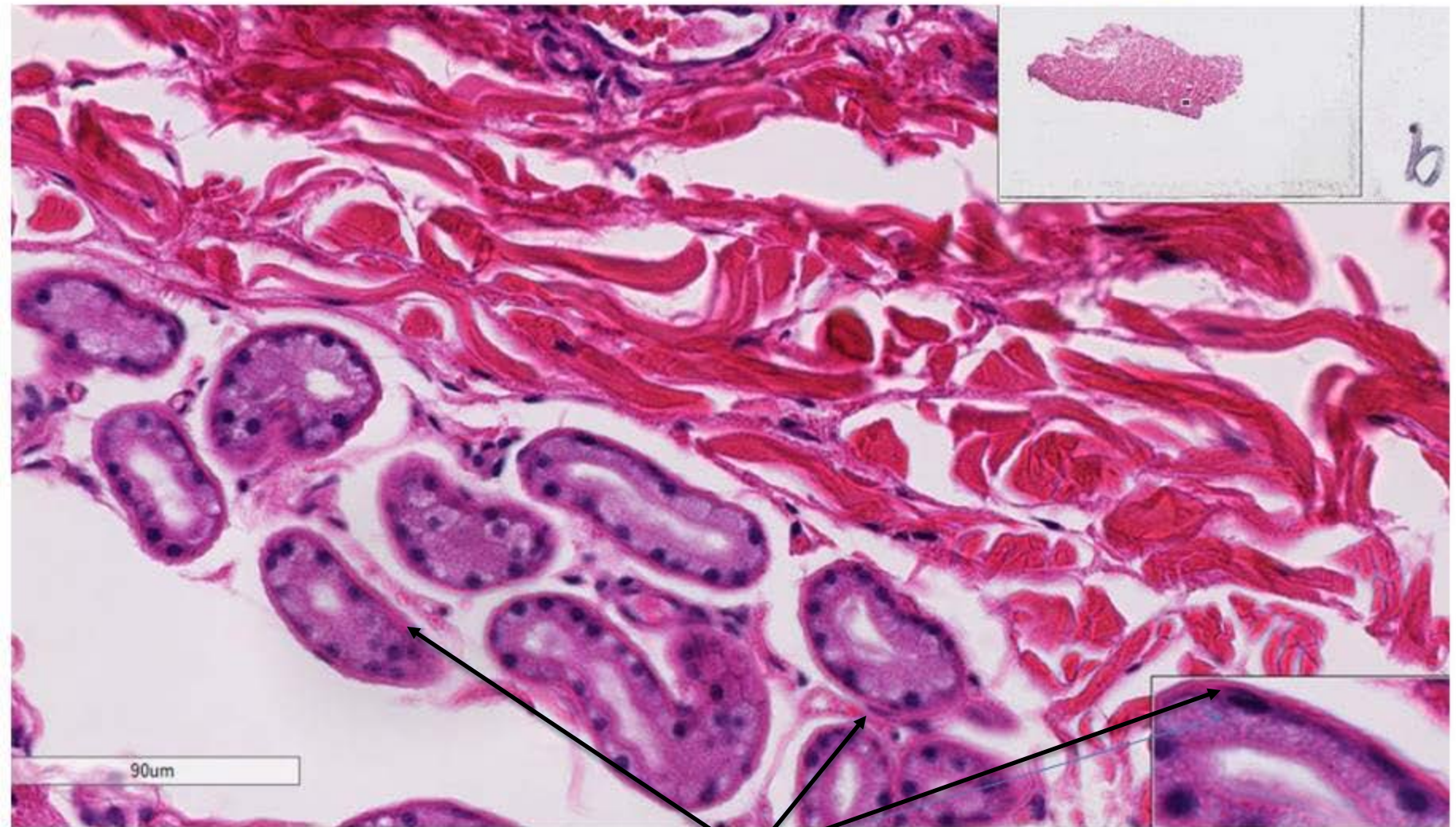
## Slide #19 (449E001-H-132). Skin, horse.



Myoepithelial cells are located inside the basement membrane.

Simple cuboidal sweat gland

## Slide #19 (449E001-H-132). Skin, horse.

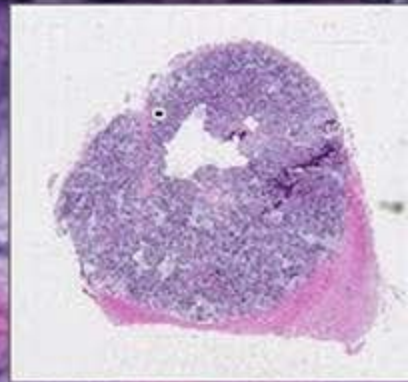
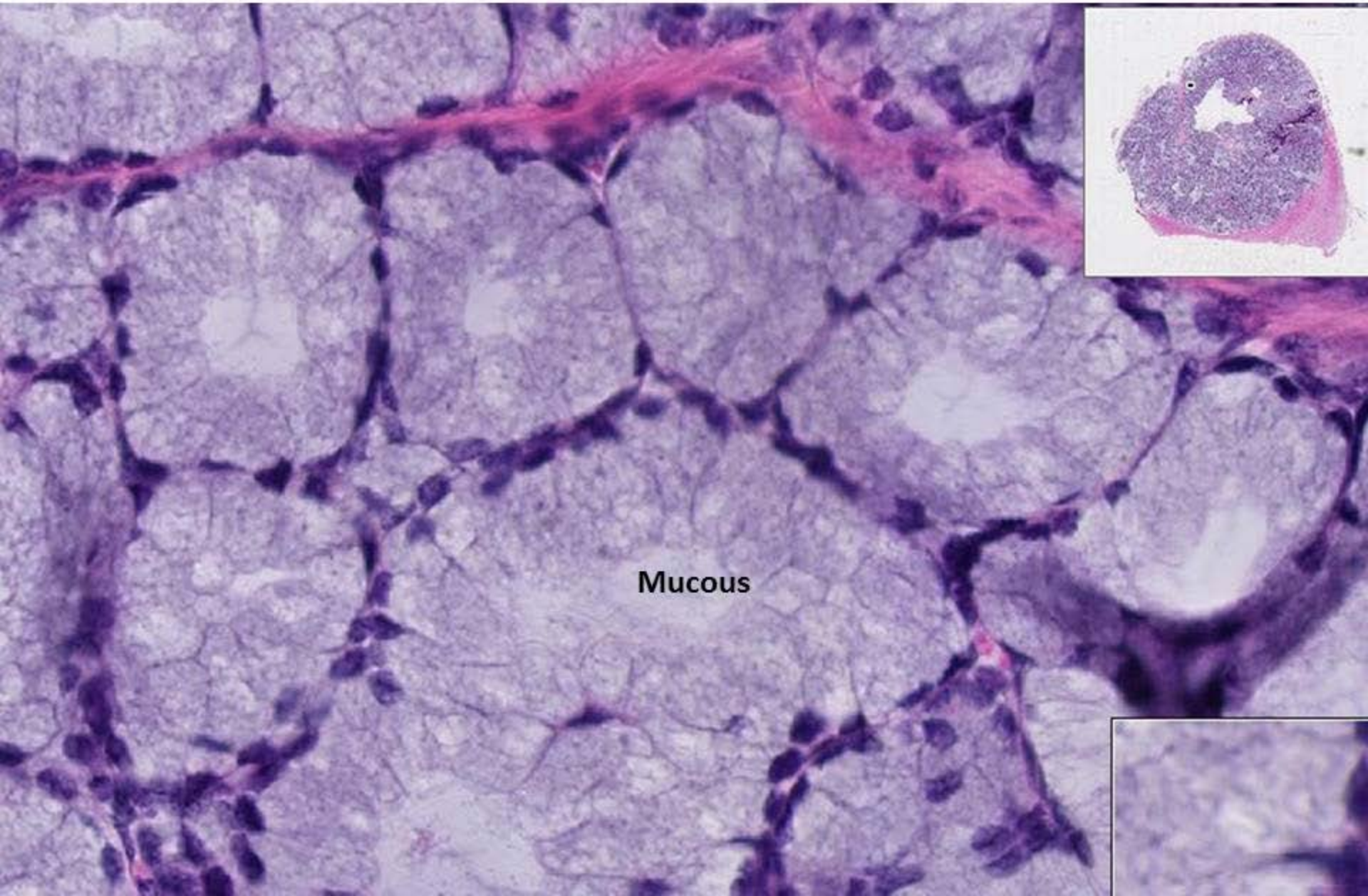


Myoepithelial cells are located inside the basement membrane.

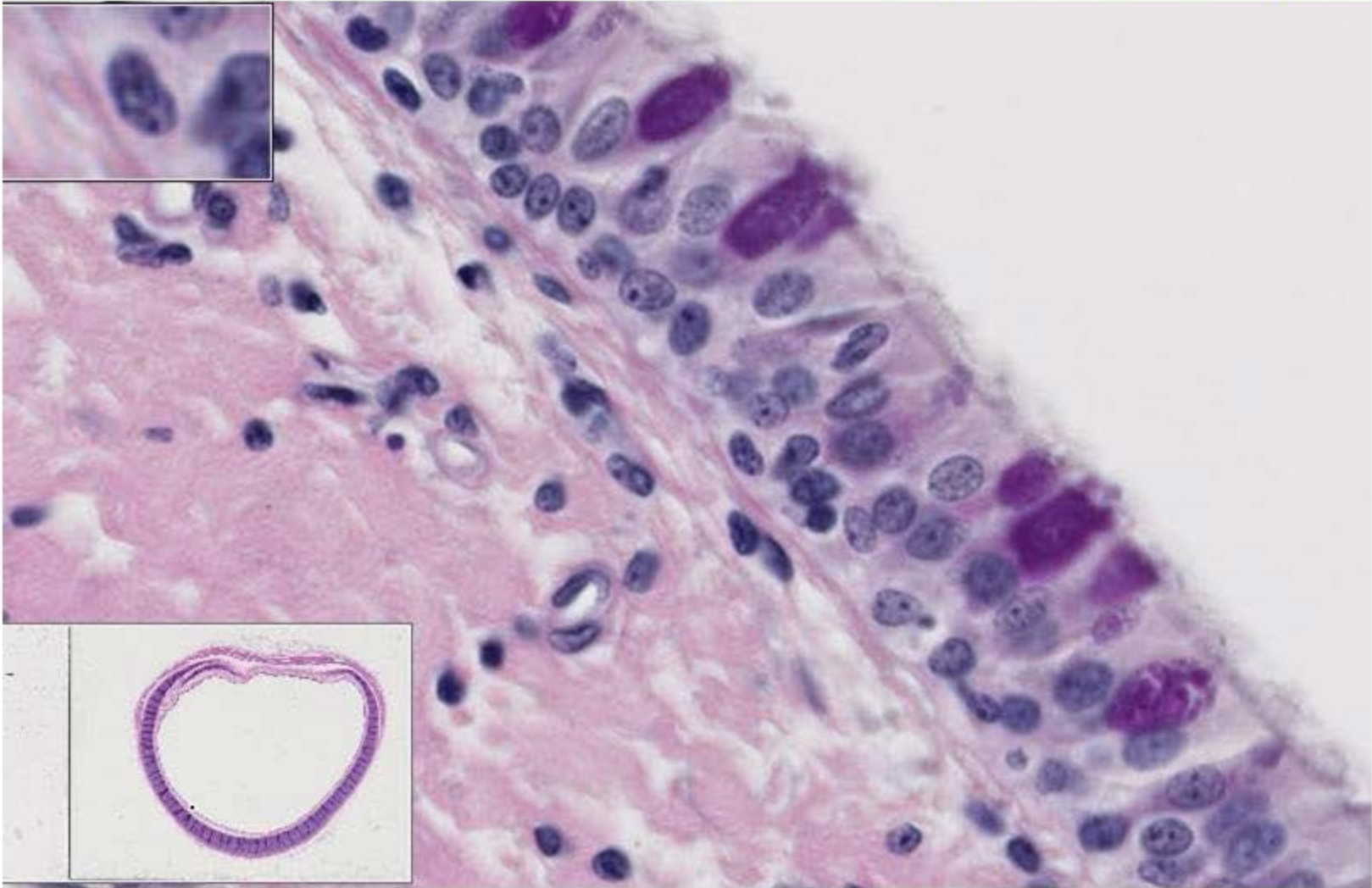
Simple cuboidal sweat gland



**Slide #131 (946). Bulbourethral gland, boar.**



## DEMO SLIDE BOX 80(Dog 1-205c) –Trachea, dog.



basement membrane contains a lot of glycoproteins and thus stains a dark pink to magenta.

# Electron micrographs

Cellular junctions:

tight junctions

intermediate junctions

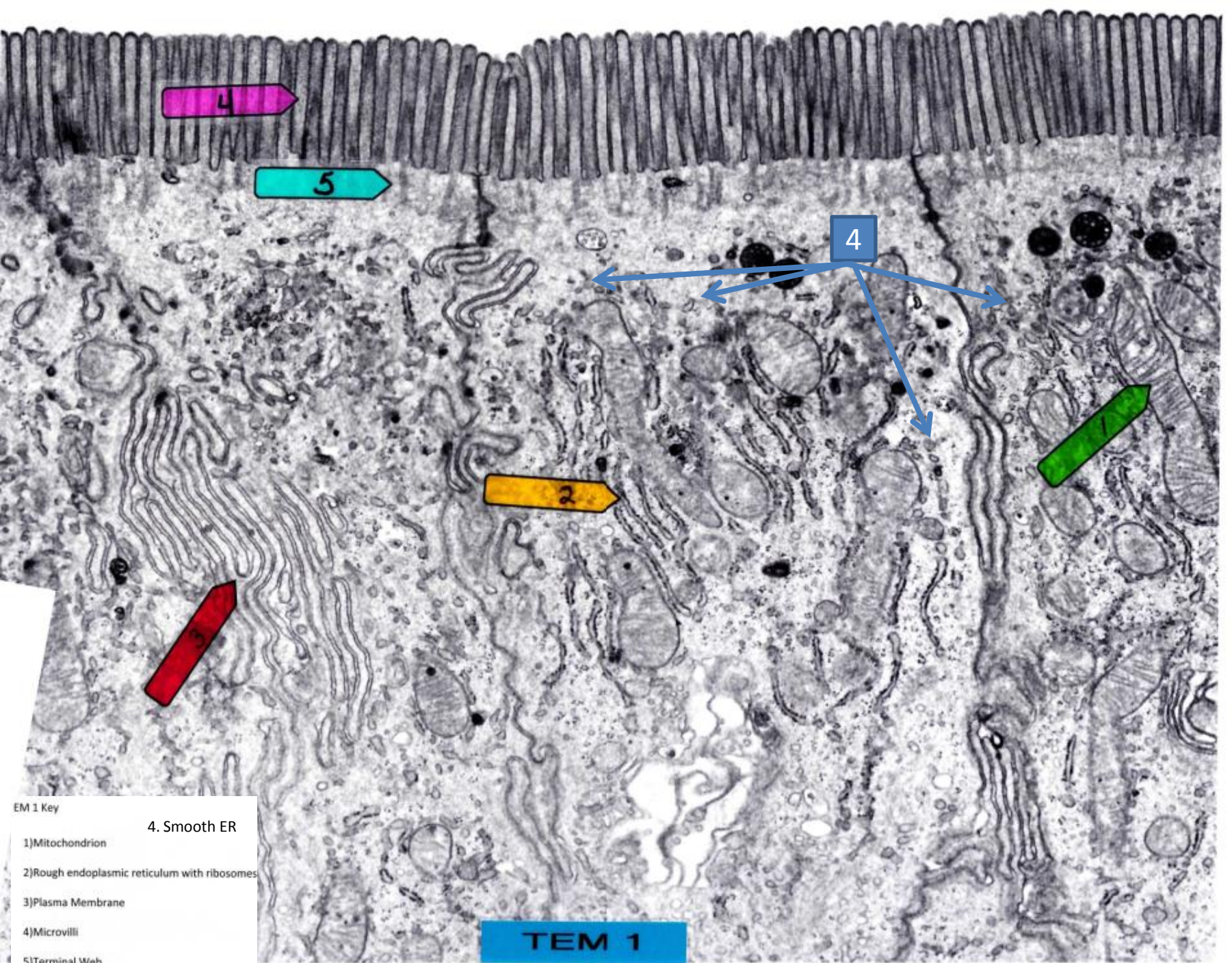
gap junctions

desmosomes

Microvilli (with glycocalyx  
& terminal web)

Cilia (with basal bodies)

Basal lamina

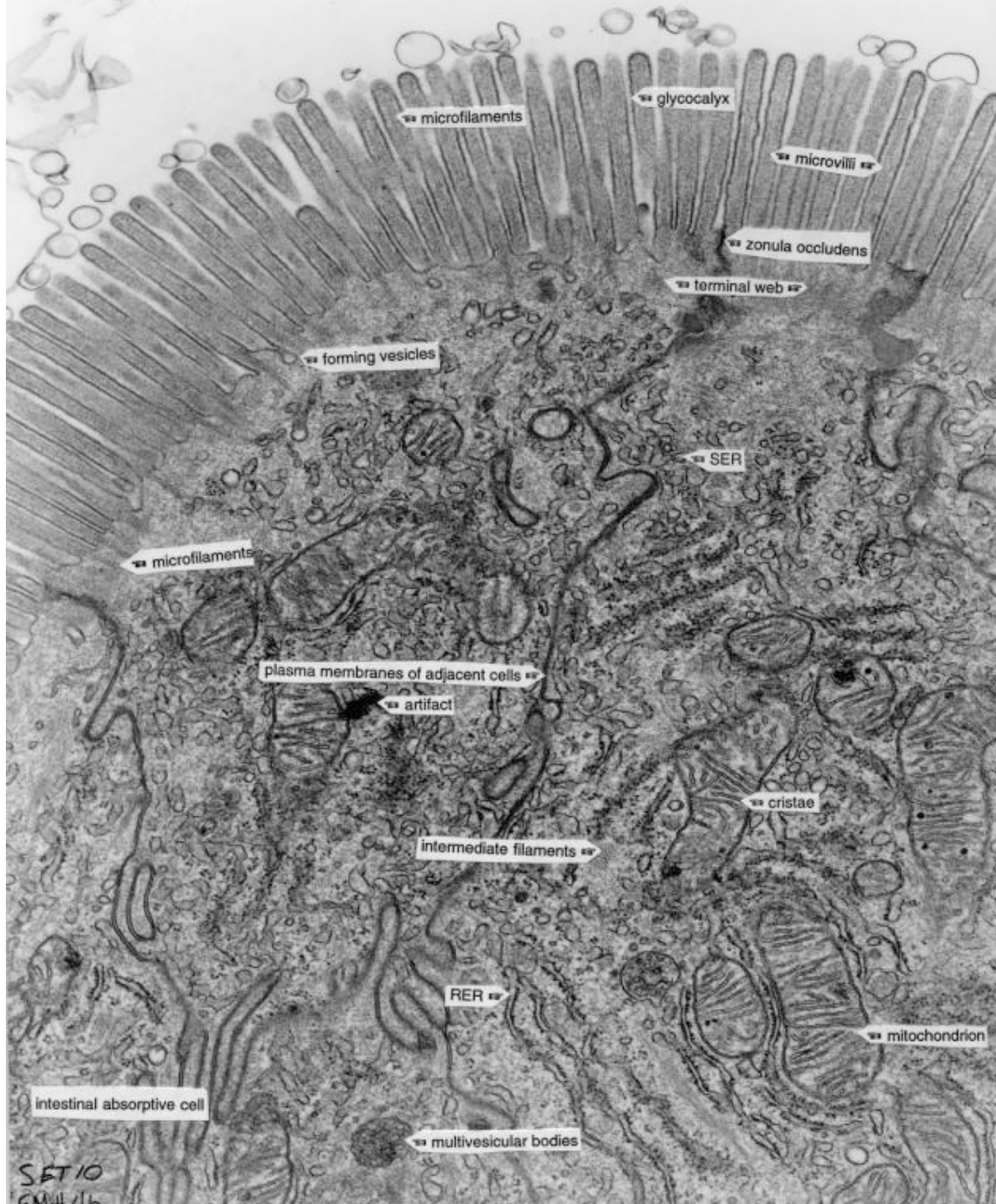


EM 1 Key

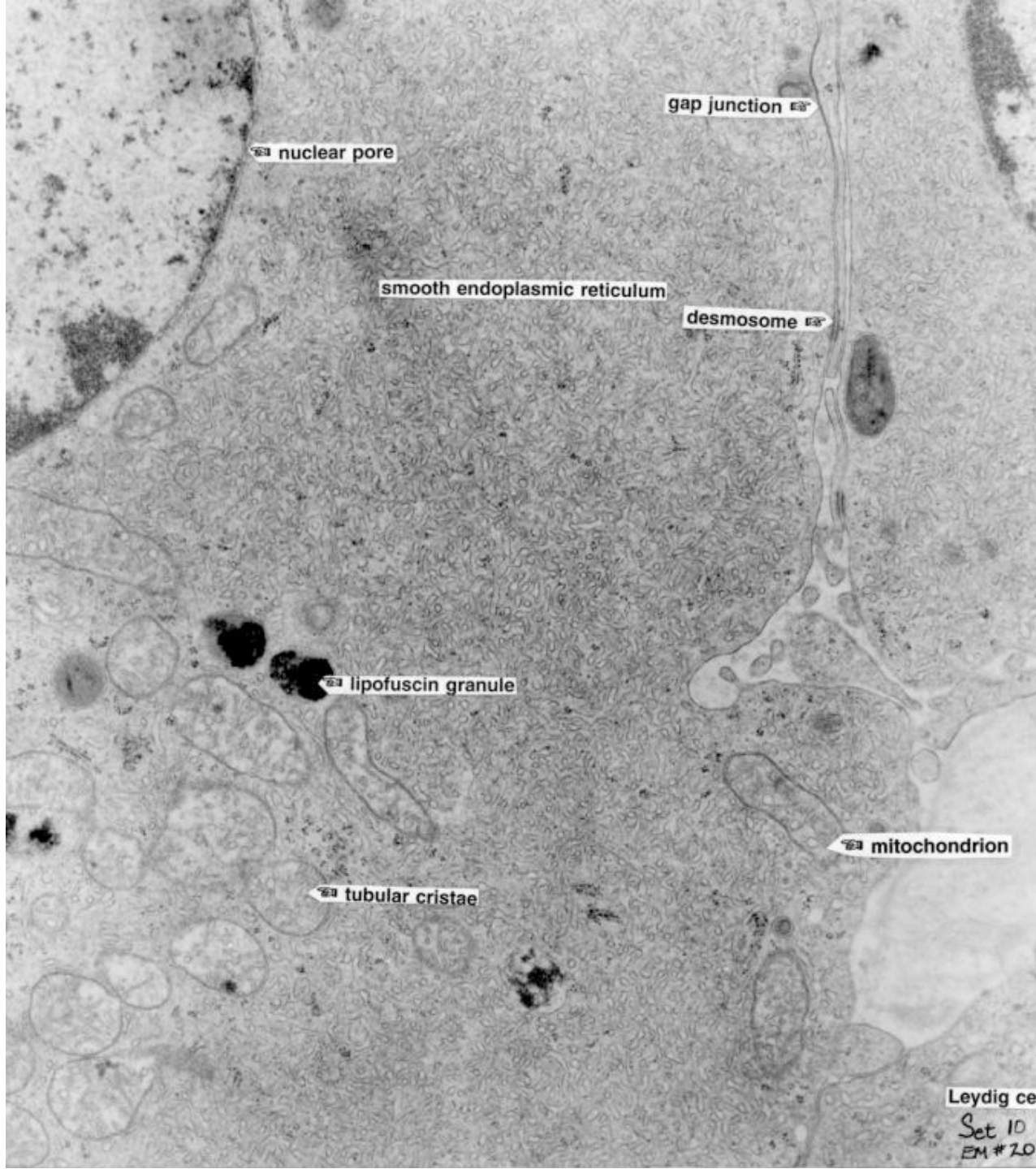
- 1) Mitochondrion
- 2) Rough endoplasmic reticulum with ribosomes
- 3) Plasma Membrane
- 4) Microvilli
- 5) Terminal Web

4. Smooth ER

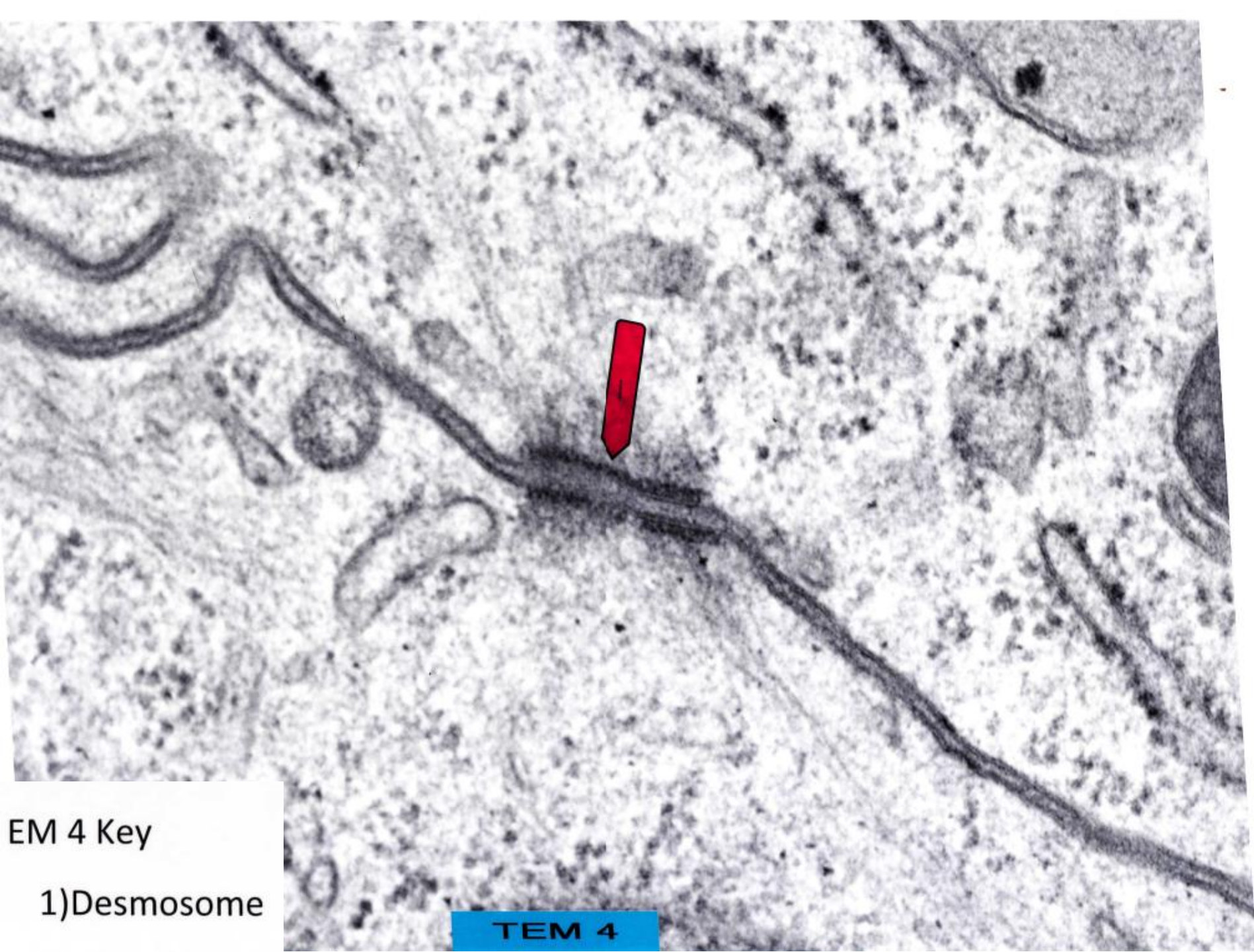
TEM 1



SET 10  
EM# 4h



Horse Leydig cell  
with a high density  
of SER  
characteristic of  
steroid secreting  
cells



EM 4 Key

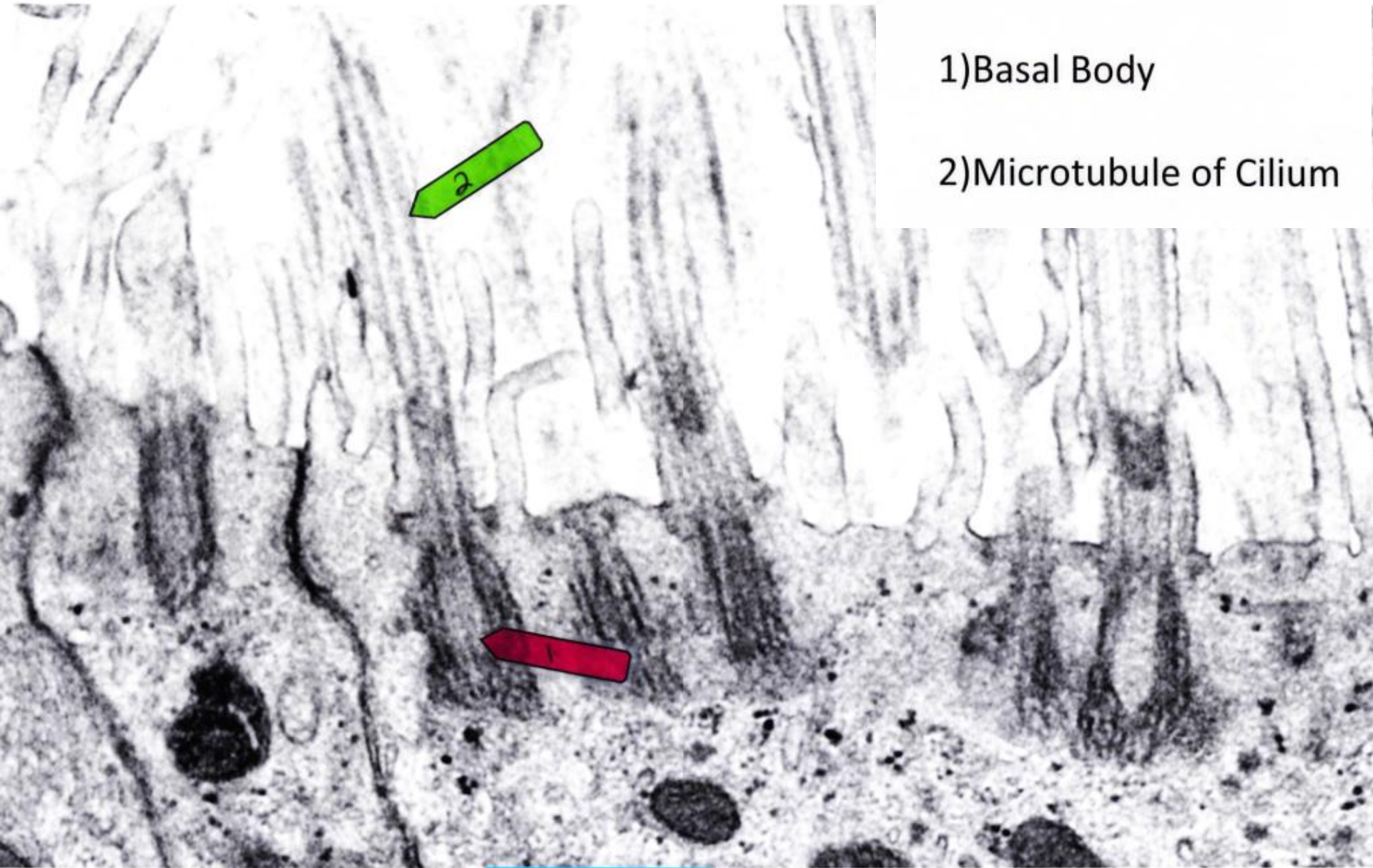
1) Desmosome

TEM 4

## EM 6 Key

1) Basal Body

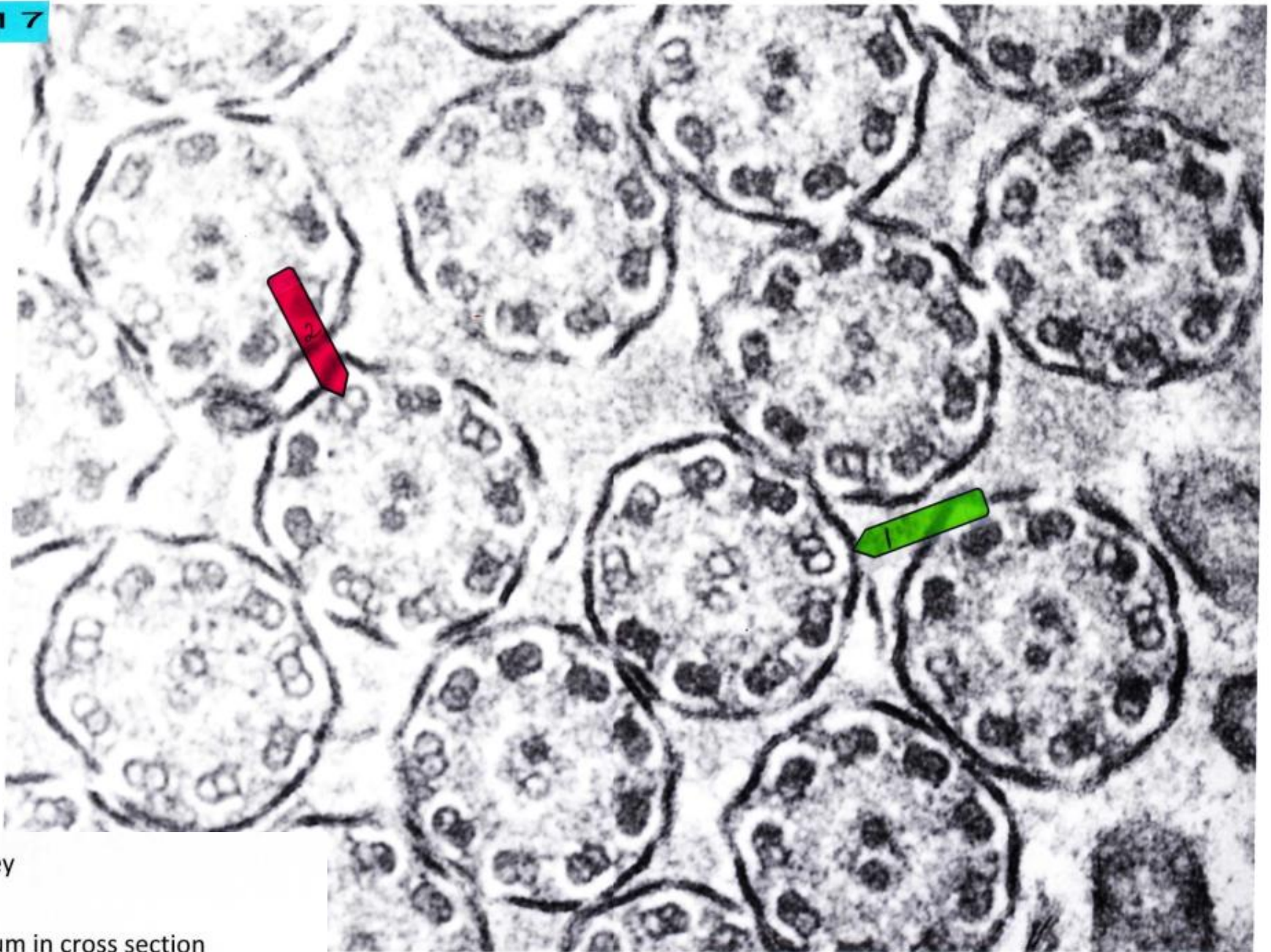
2) Microtubule of Cilium



TEM 6



TEM 7



EM 7 Key

1) Cilium in cross section

2) microtubule doublet of a cilium



goblet cell

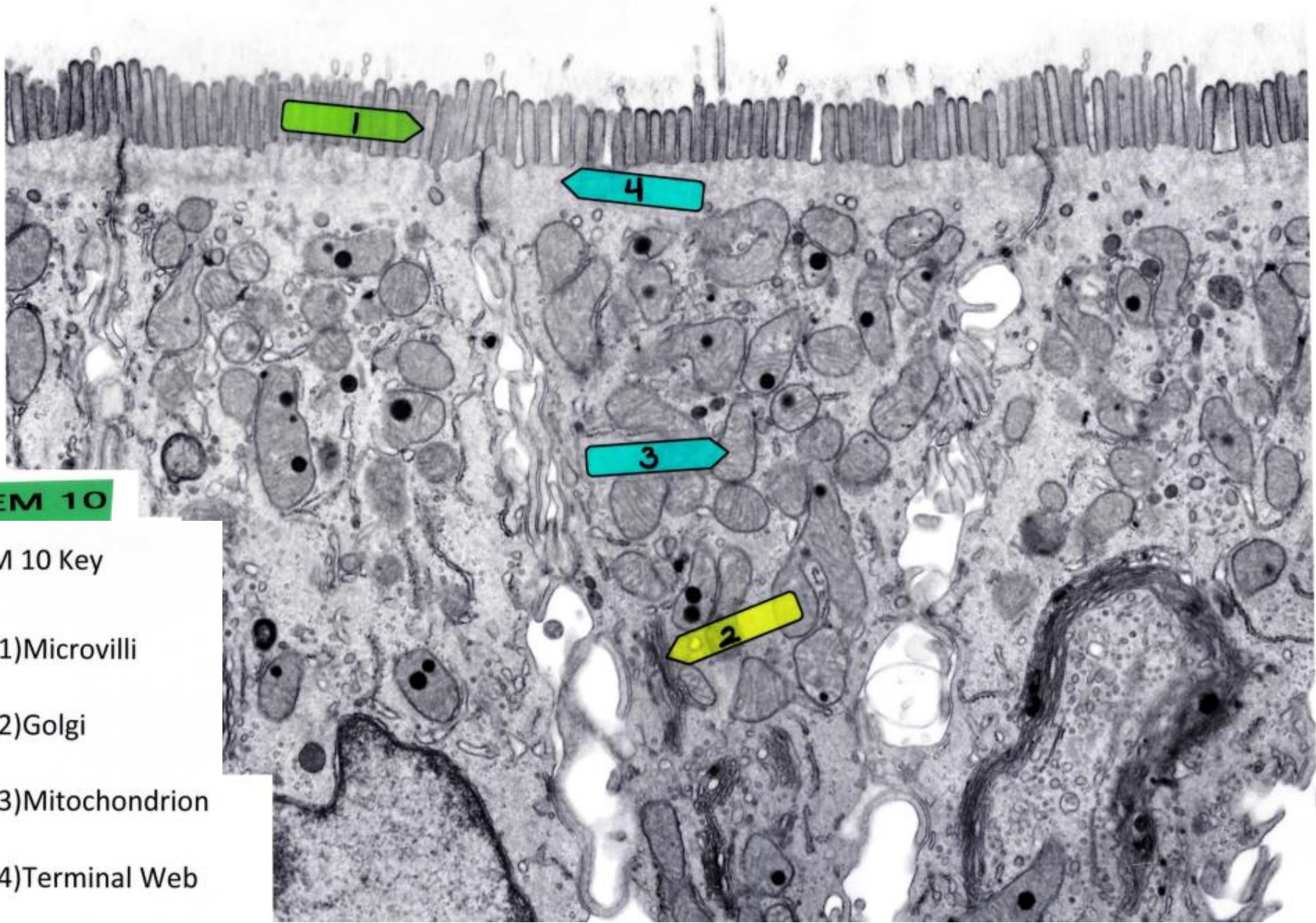
mucus

microvilli

cilia

trachea (cilia - scanning)

Set 10  
EM #8

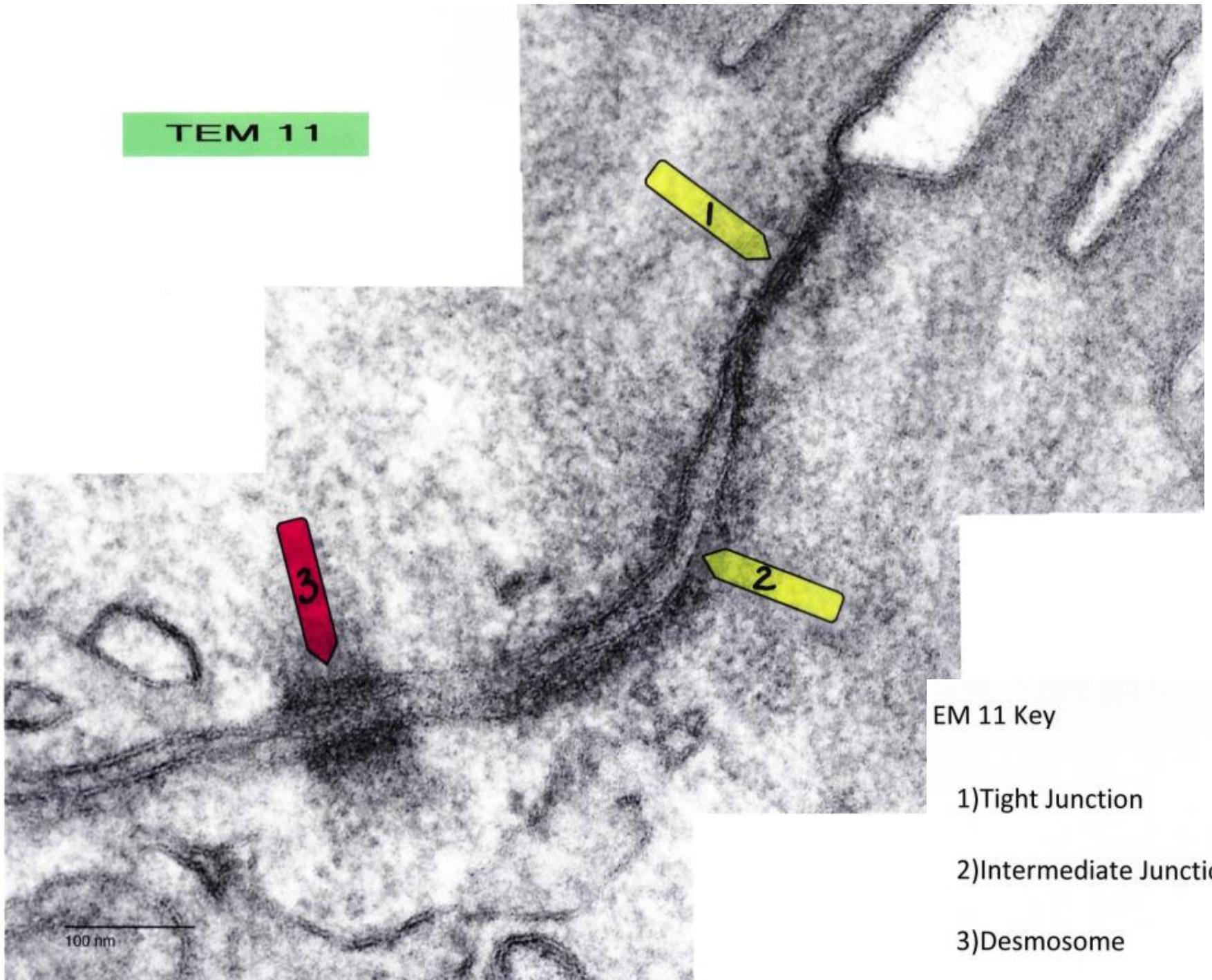


**TEM 10**

EM 10 Key

- 1) Microvilli
- 2) Golgi
- 3) Mitochondrion
- 4) Terminal Web

TEM 11



EM 11 Key

1) Tight Junction

2) Intermediate Junction

3) Desmosome

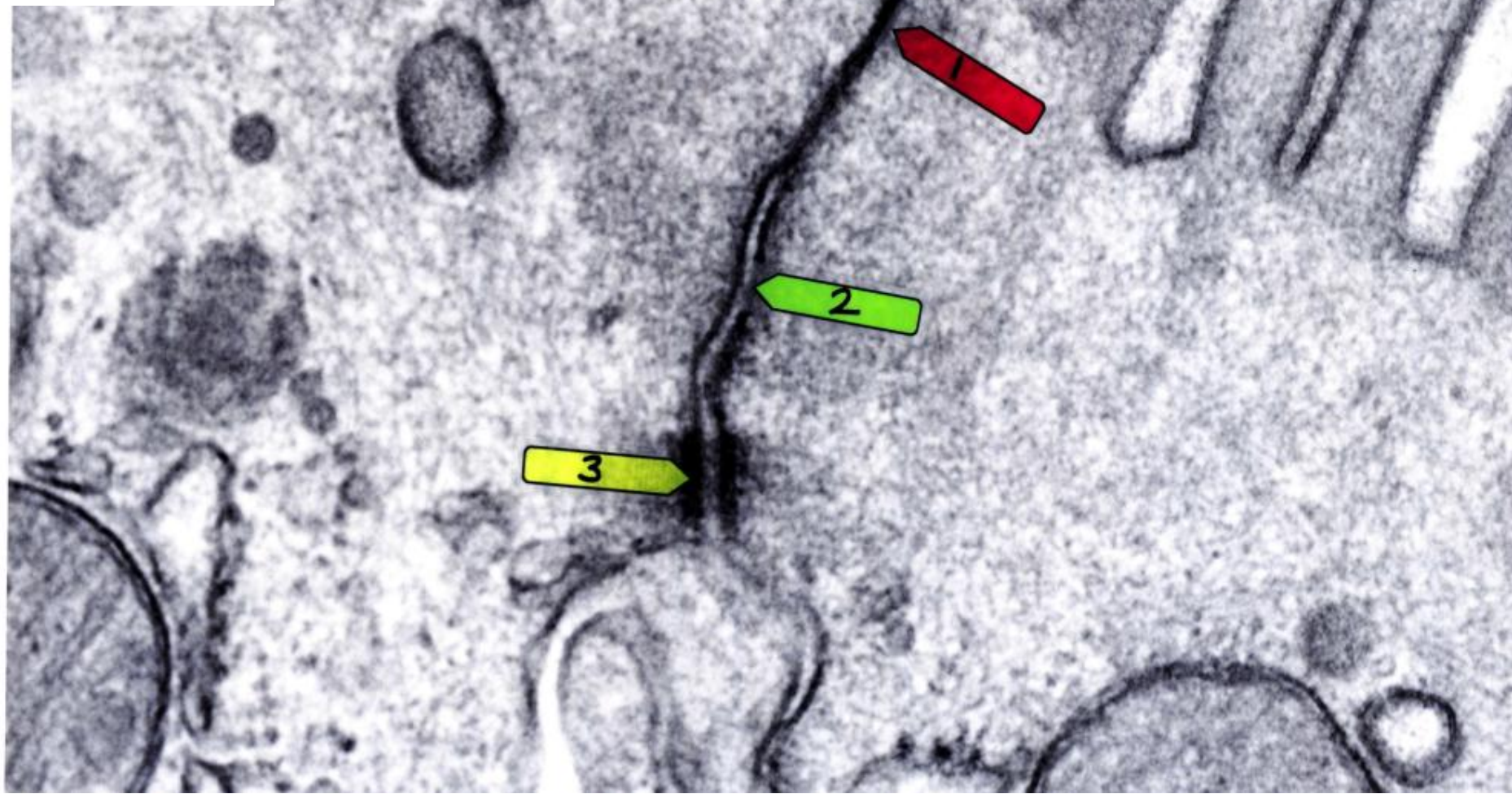
# TEM 12

EM 12 Key

1) Tight Junction

2) Intermediate Junction

3) Desmosome



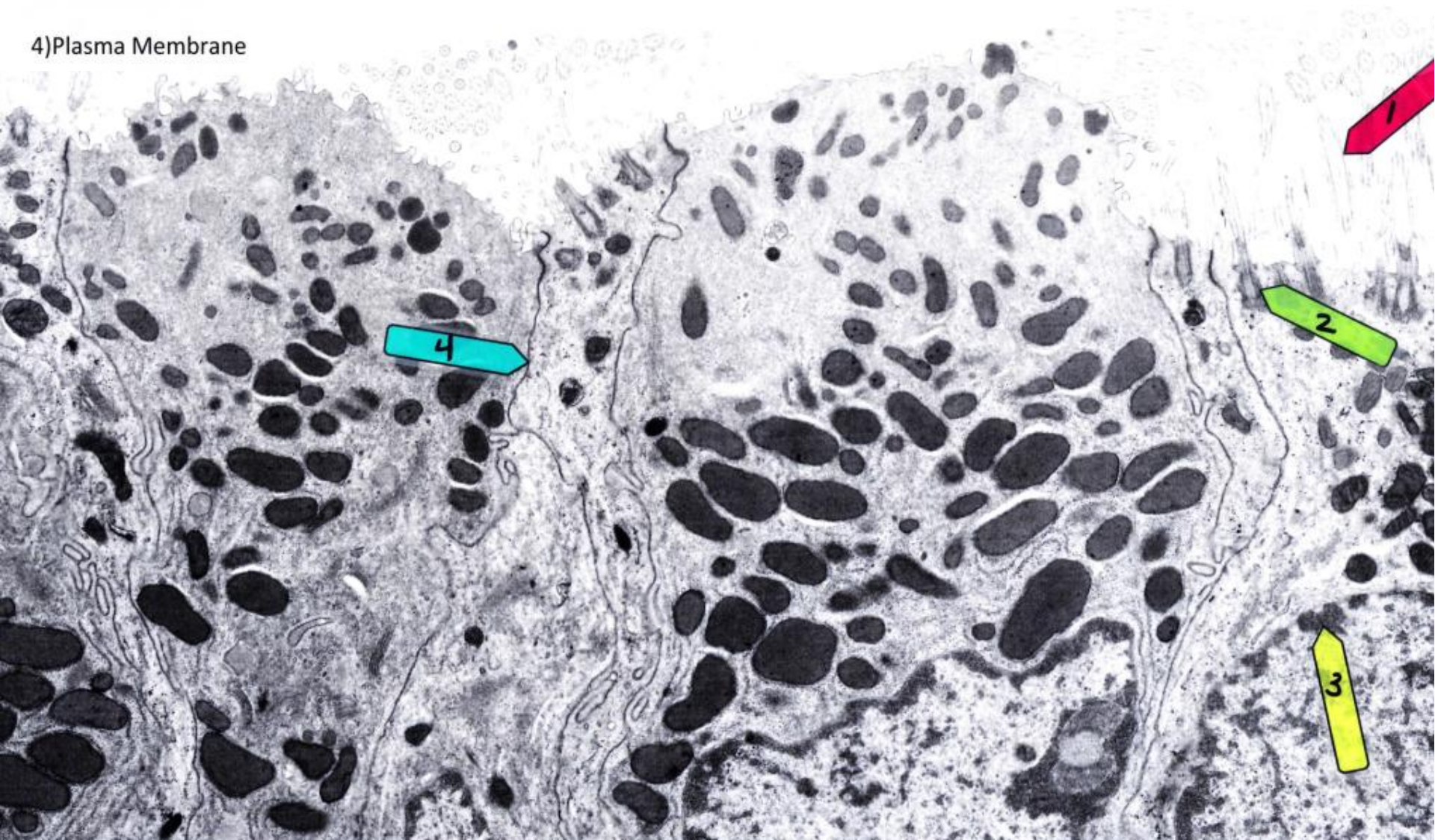
1) Cilium

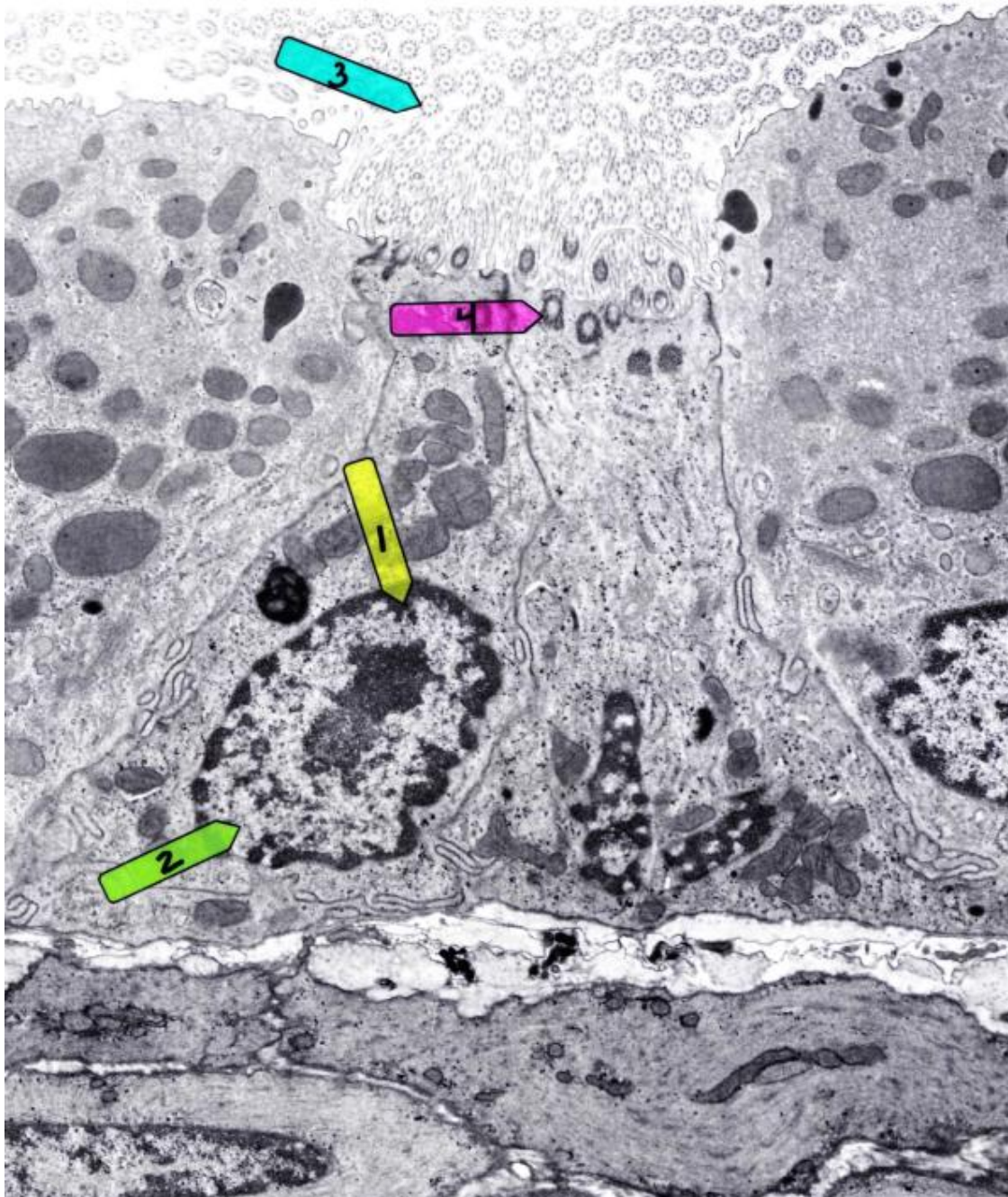
2) Basal Bodies

3) Heterochromatin

4) Plasma Membrane

TEM 14





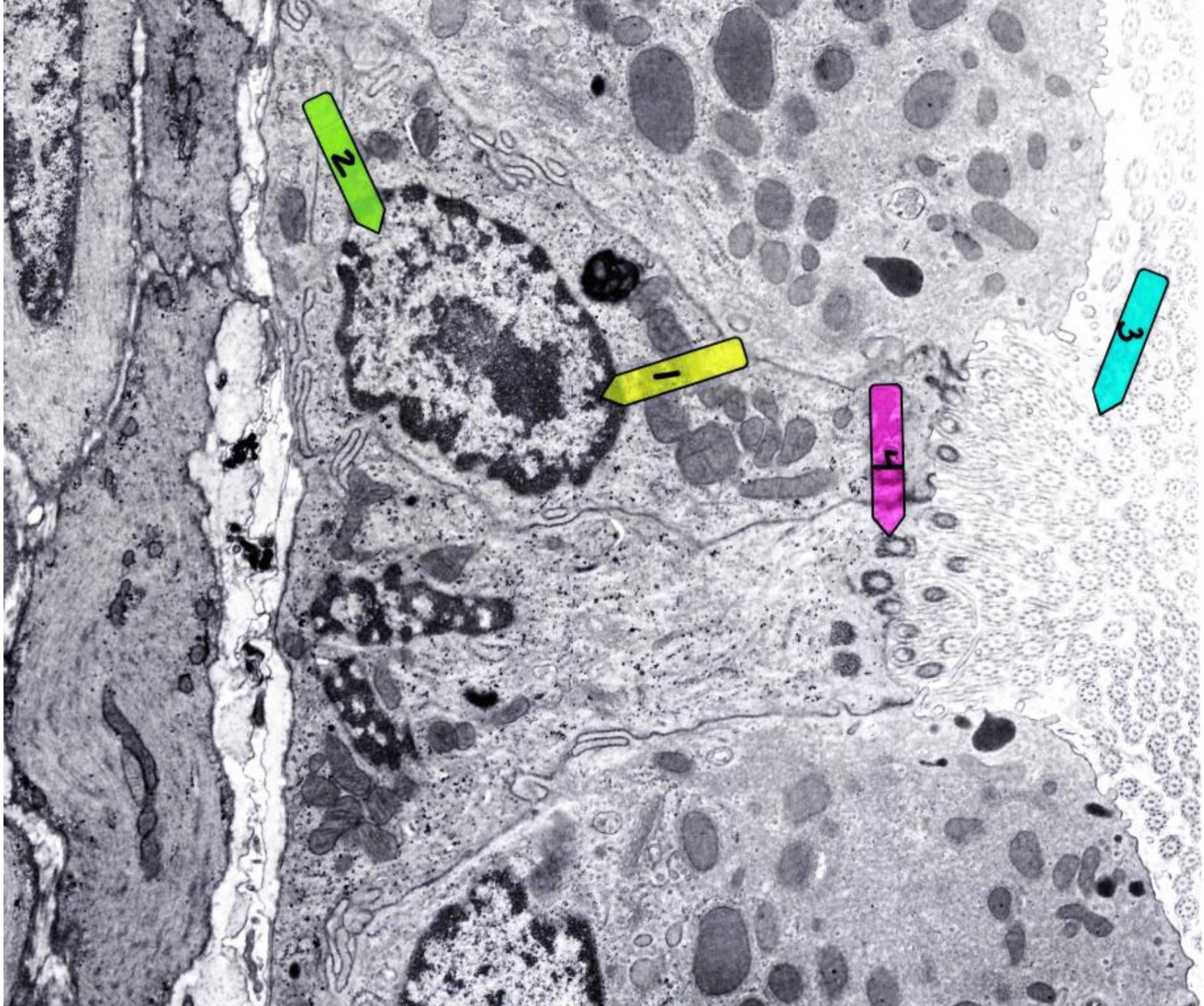
EM 15 Key

1) Heterochromatin

2) Euchromatin

3) Cilia

4) Basal Body





EM 25 Key

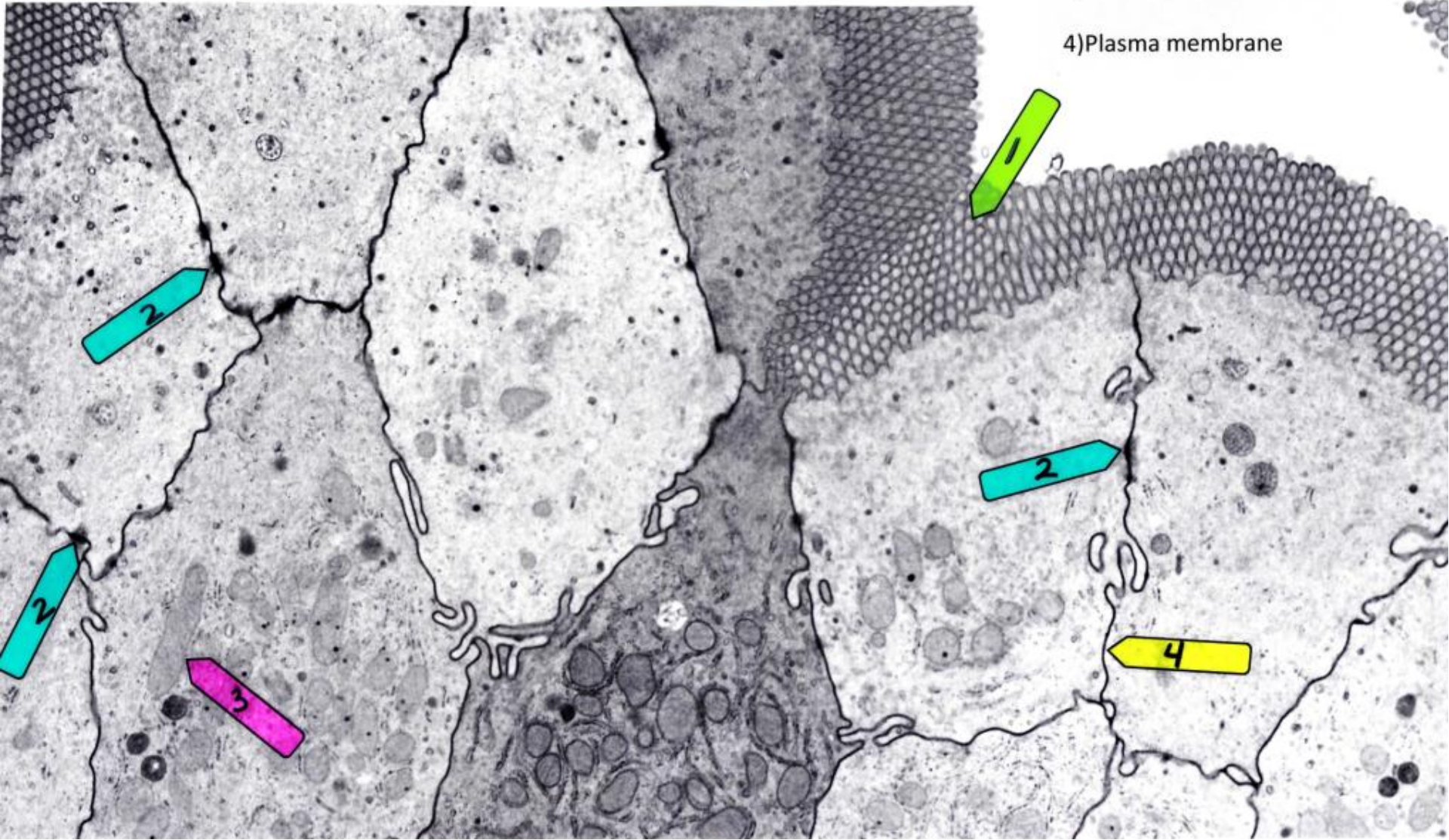
1) Cross section of microvilli

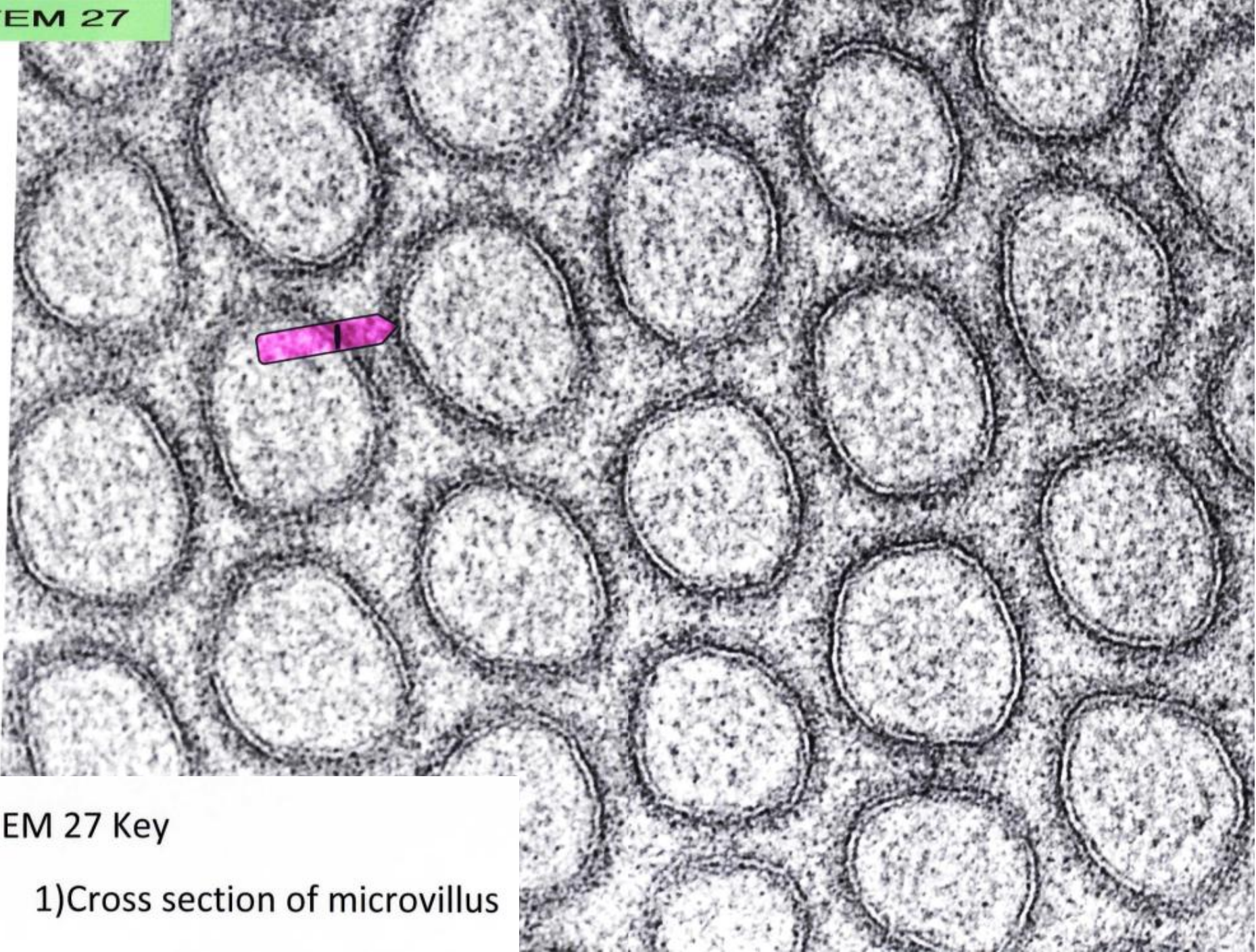
2) Desmosome

3) Mitochondrion

4) Plasma membrane

TEM 25





EM 27 Key

- 1) Cross section of microvillus

# EM 32 Key

1) Microvilli

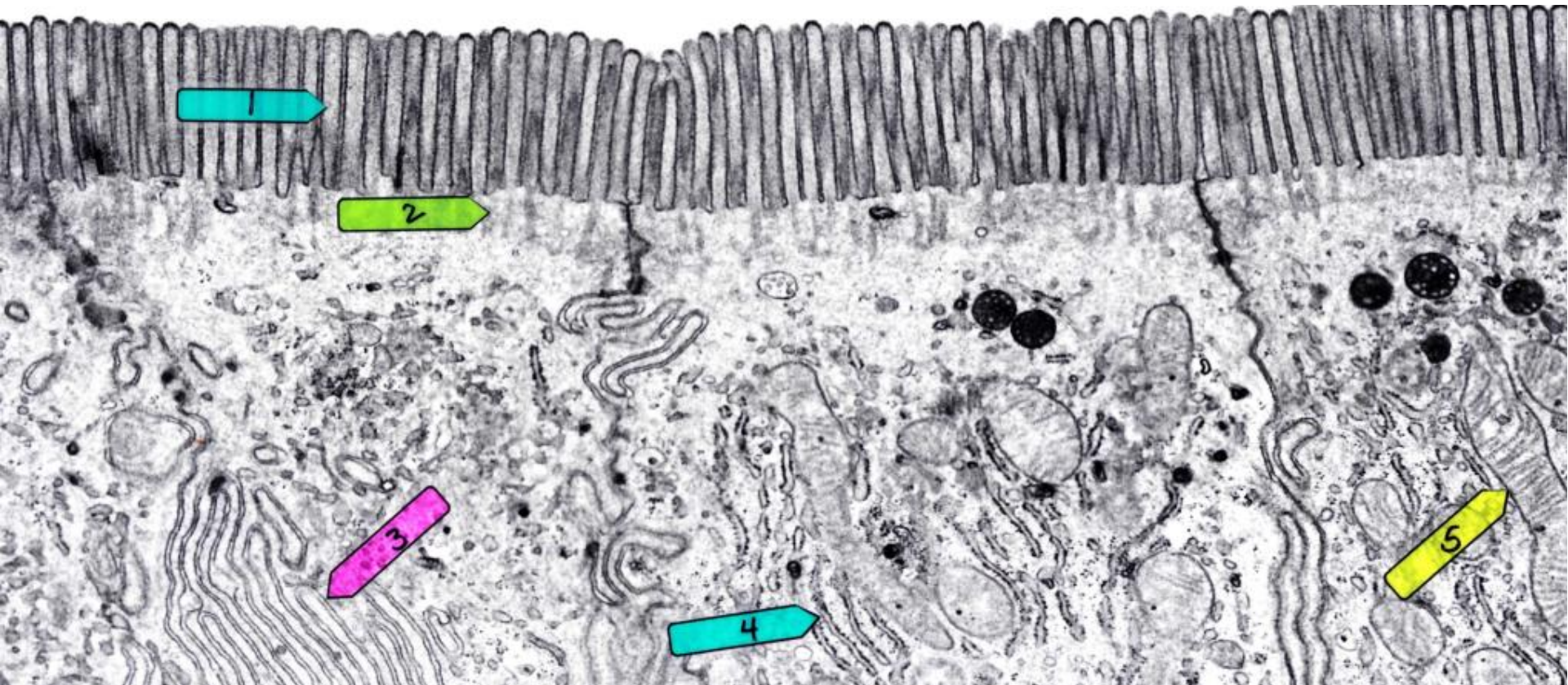
2) Terminal web

3) Plasma Membrane

4) Rough Endoplasmic Reticulum

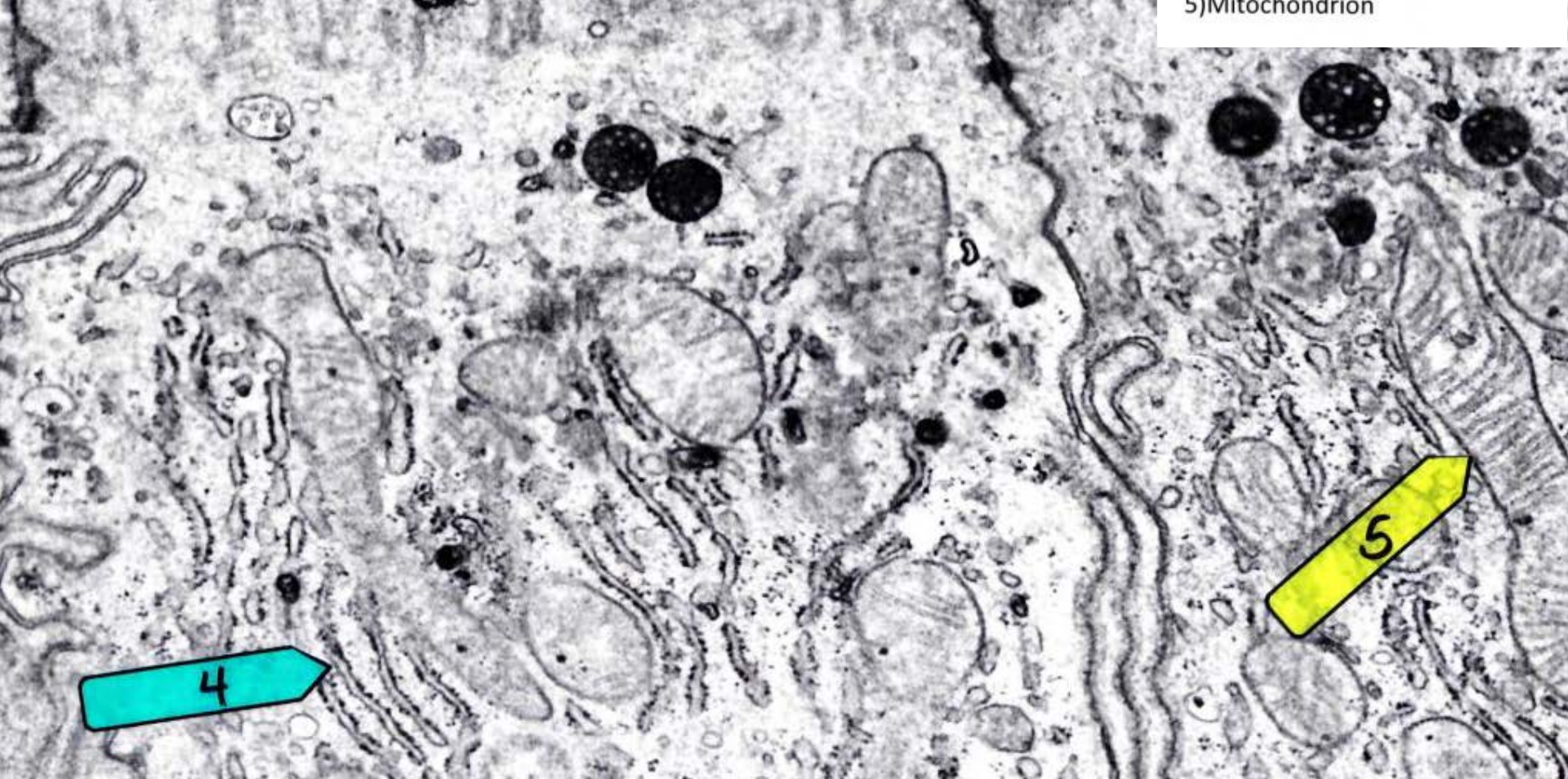
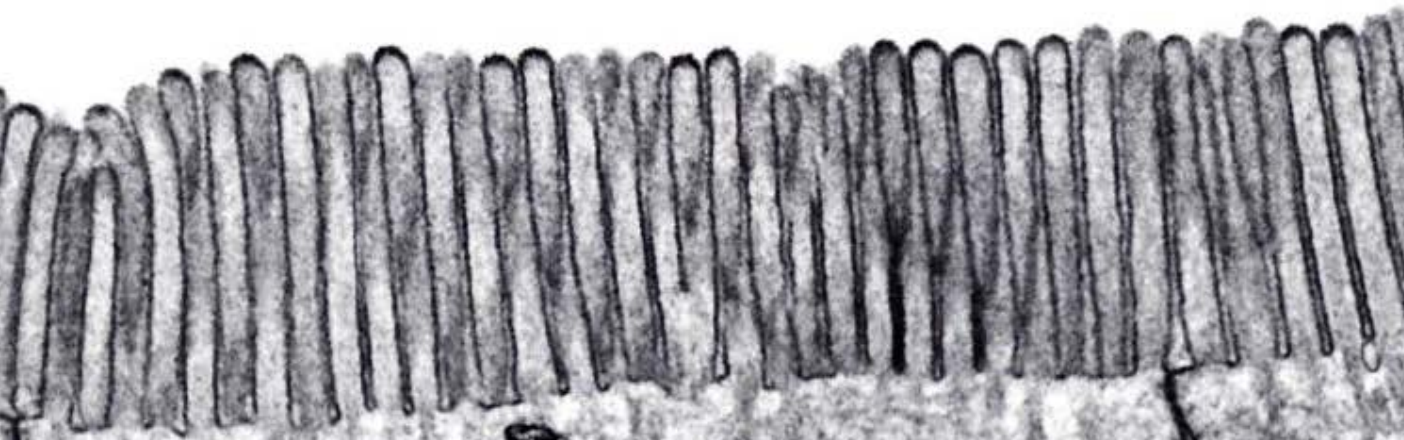
5) Mitochondrion

TEM 32



EM 32 Key

- 1) Microvilli
- 2) Terminal web
- 3) Plasma Membrane
- 4) Rough Endoplasmic Reticulum
- 5) Mitochondrion



# TEM 32

## EM 32 Key

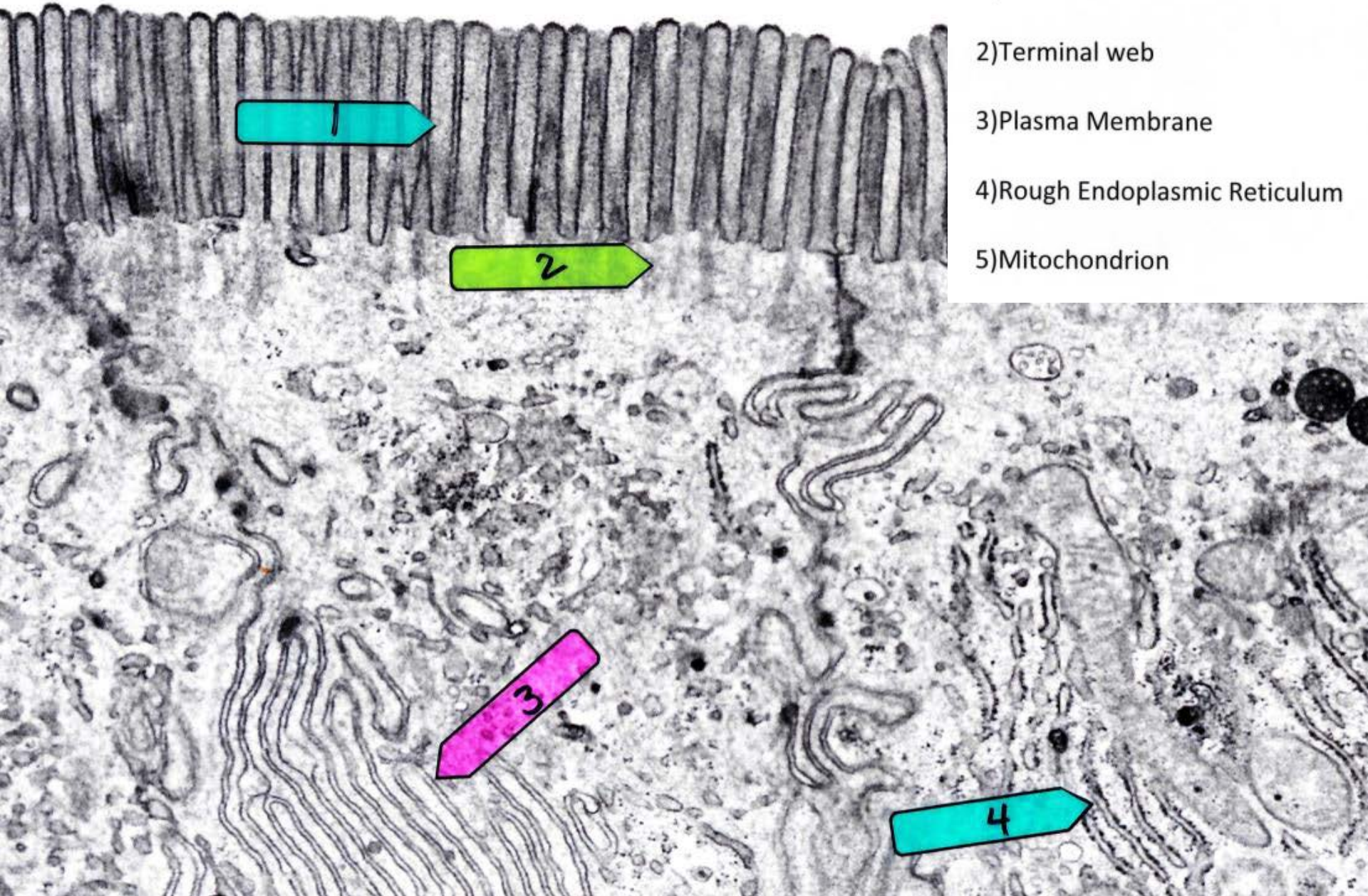
1) Microvilli

2) Terminal web

3) Plasma Membrane

4) Rough Endoplasmic Reticulum

5) Mitochondrion



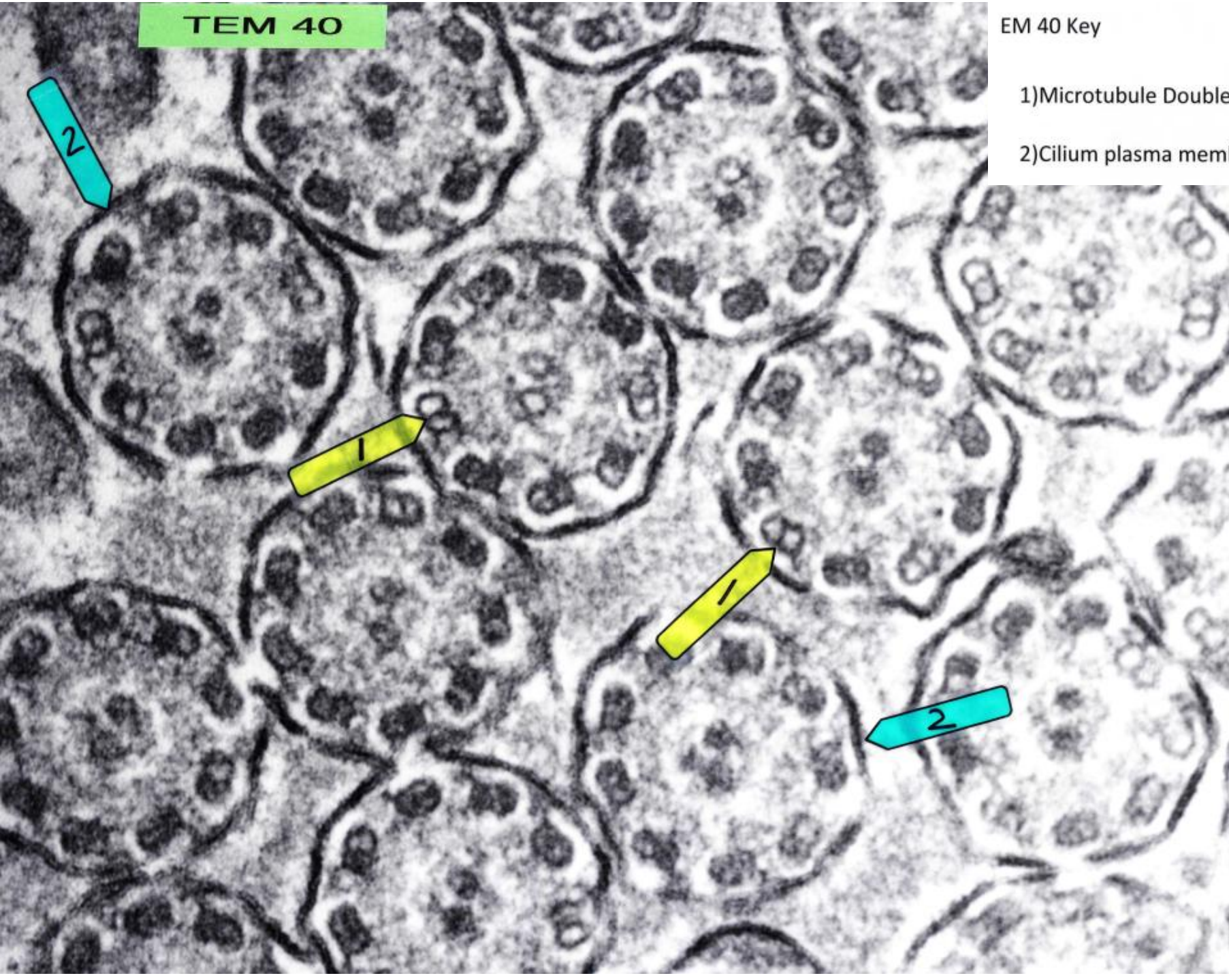


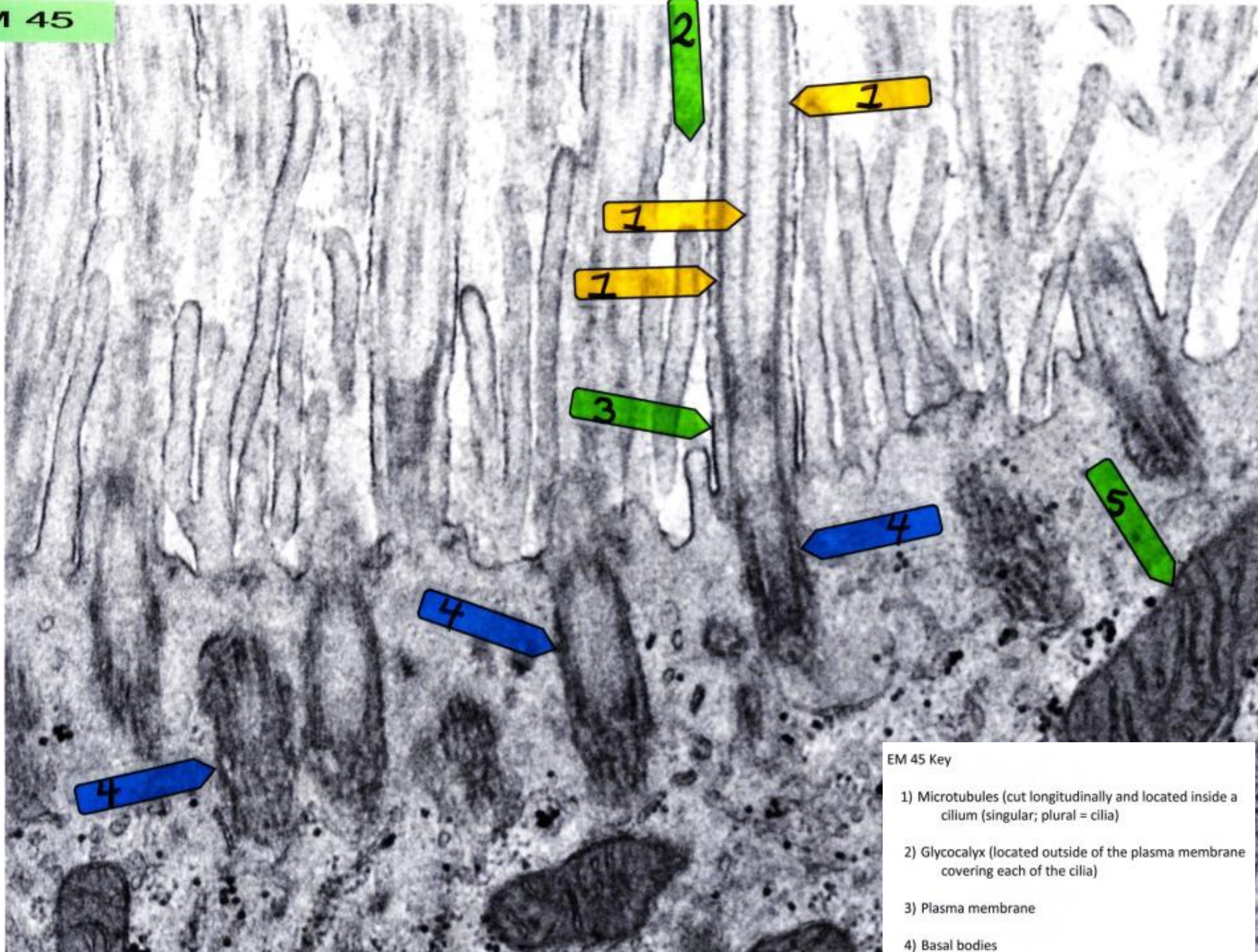
TEM 40

EM 40 Key

1) Microtubule Doublet

2) Cilium plasma membrane



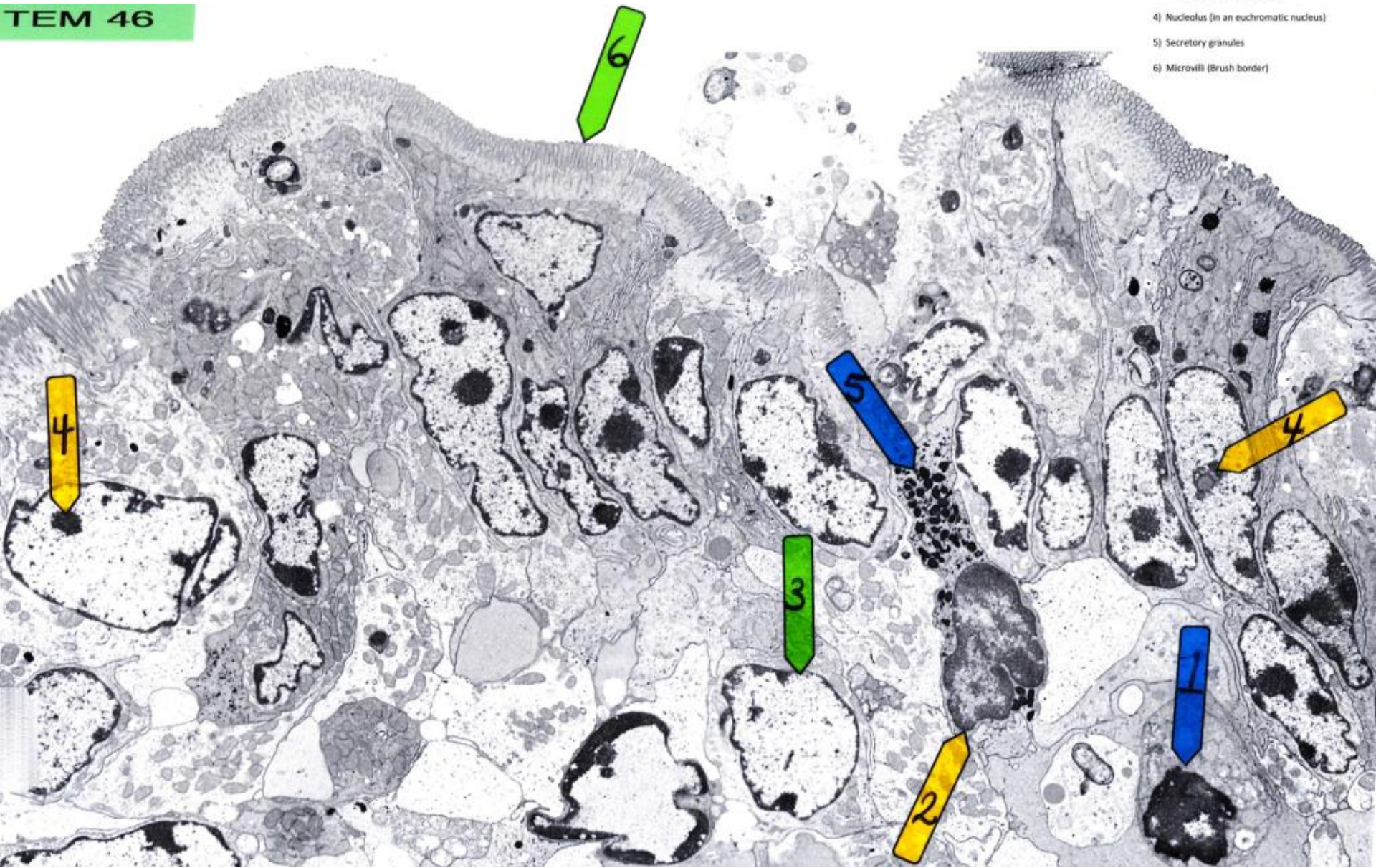


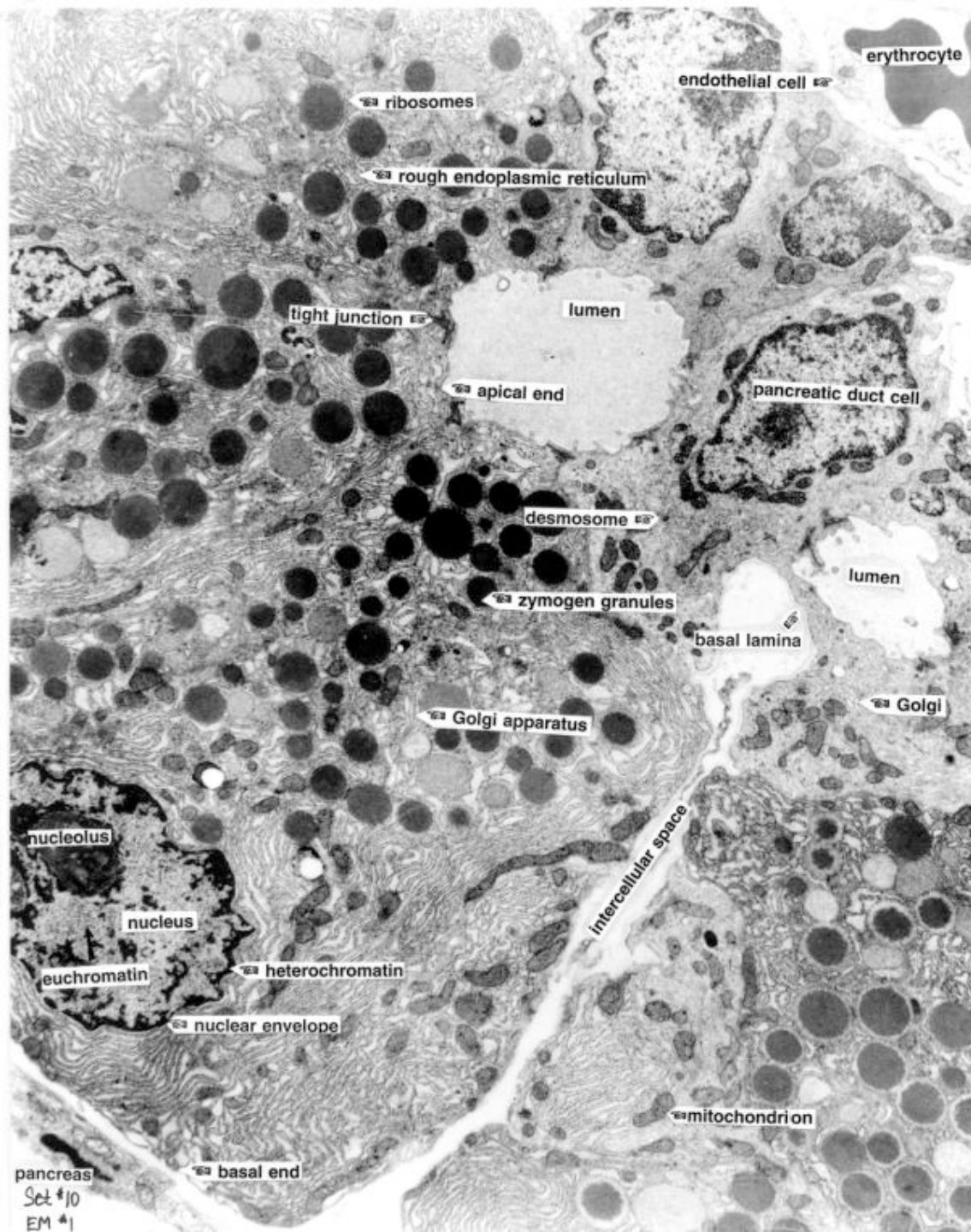
- EM 45 Key
- 1) Microtubules (cut longitudinally and located inside a cilium (singular; plural = cilia)
  - 2) Glycocalyx (located outside of the plasma membrane covering each of the cilia)
  - 3) Plasma membrane
  - 4) Basal bodies
  - 5) Mitochondrion

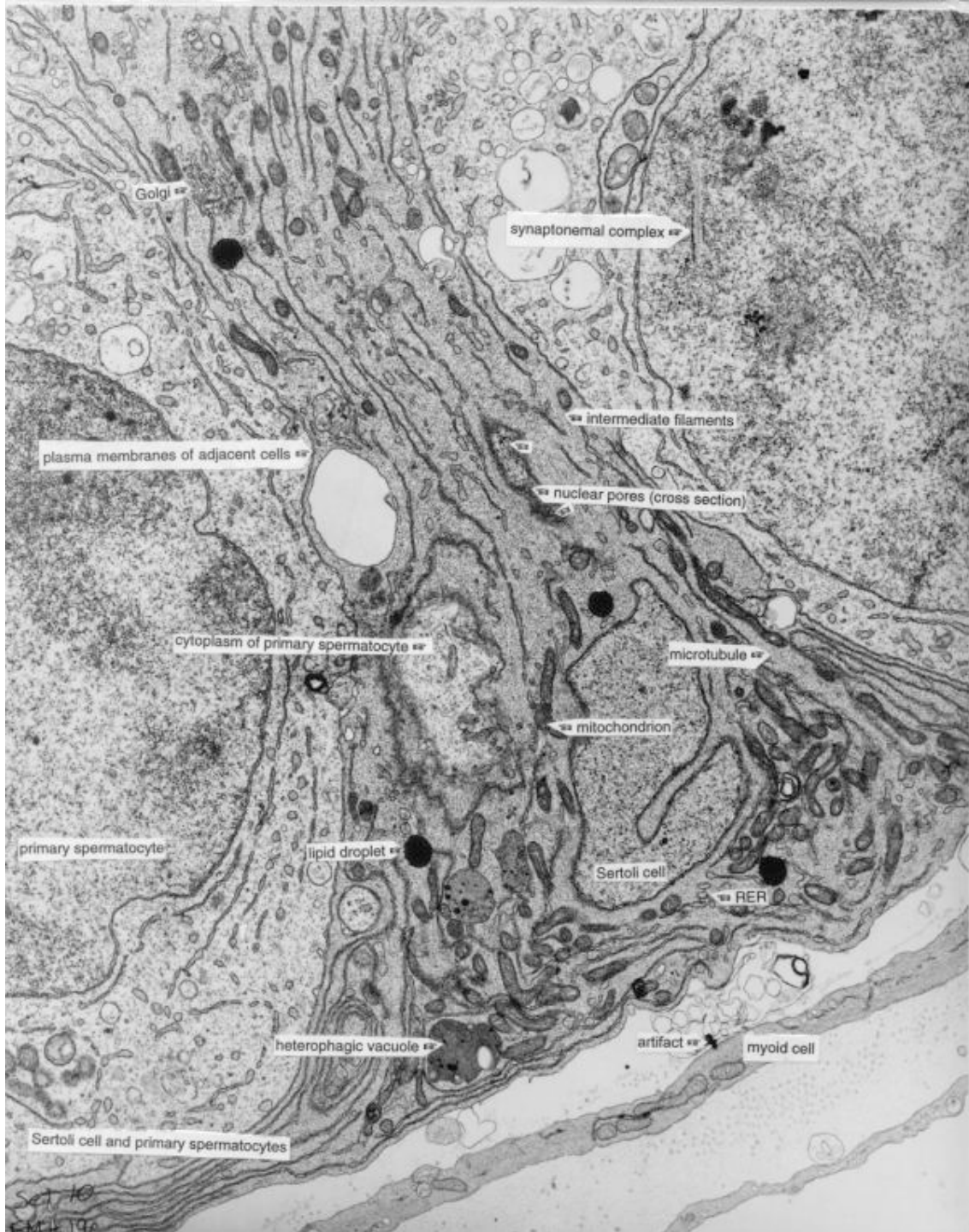


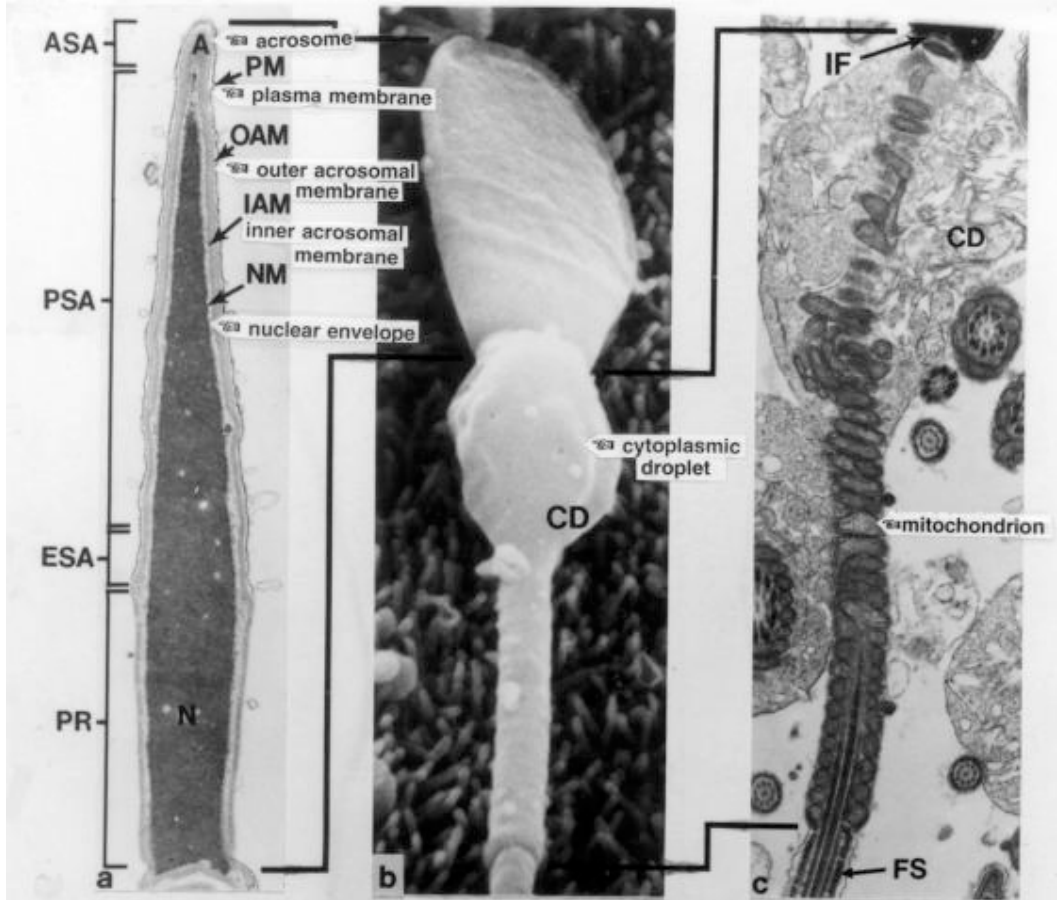
TEM 46

- 1) Nucleus that contains mostly heterochromatin (a darkly heterochromatic nucleus)
- 2) Nucleus that still contains a great deal of heterochromatin, but contains less heterochromatin than the nucleus labeled #1. (a moderately heterochromatic nucleus)
- 3) Nucleus with mostly euchromatin (an euchromatic nucleus)
- 4) Nucleolus (in an euchromatic nucleus)
- 5) Secretory granules
- 6) Microvilli (Brush border)

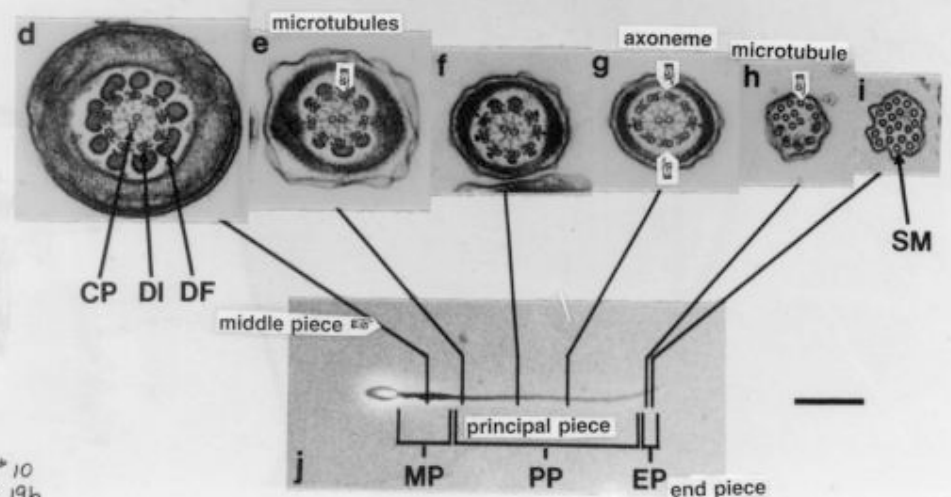








Horse sperm



Set # 10  
EM # 196

