



Motivational Corner:

“There will always be things you don't know. Don't fear not knowing. Know where to find answers.”

Please check out the [editing file](#) before starting the lecture.



Objectives:

By the end of this lecture, the student should

be able to:

1. Describe the histological structure of the thyroid gland.
2. Identify and correlate between the different endocrine cells in thyroid gland and their functions.

2-

Thyroid gland.

Extra notes: Gray

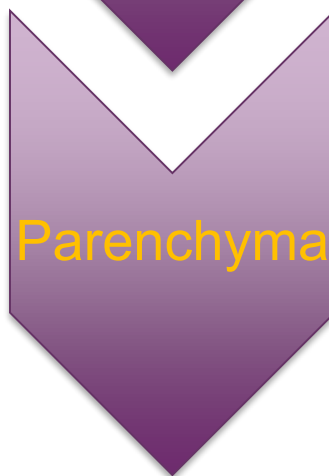
Important notes: Red

+ Thyroid Gland

Thyroid gland is in front of the trachea, Its Importance is secretion of hormones, it is so rich in fenestrated blood capillaries.
Its main function of thyroid is metabolism.



- 1. **Capsule:** dense irregular collagenous C.T.
- 2. **Septa** (interlobular septa).
- 3. **Reticular fibers:** Thin C.T. composed mostly of reticular fibers with rich capillary plexus surrounds each thyroid follicle.



Thyroid follicles: are the structural and functional units of the thyroid gland.

Parenchyma is very characteristic and unique → follicles "epithelial cells forming hormones."

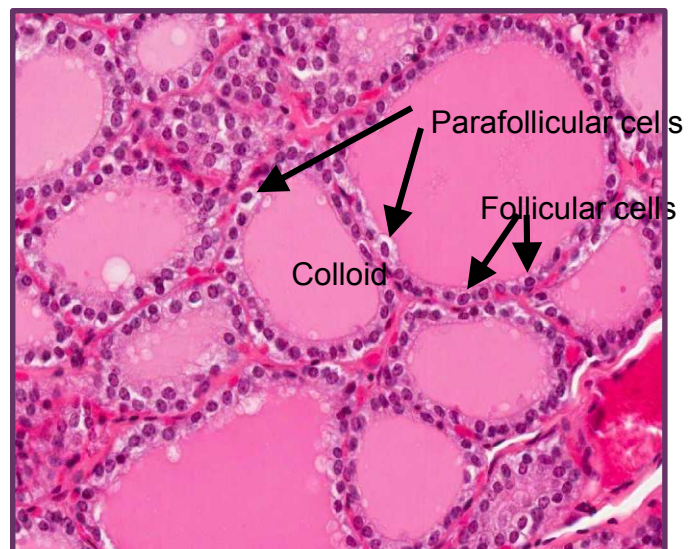
Light microscope of thyroid follicles:

1. **Simple cuboidal epithelium:**

A- Follicular cells. → major cell in the thyroid gland, they're cells forming the wall of the follicle.

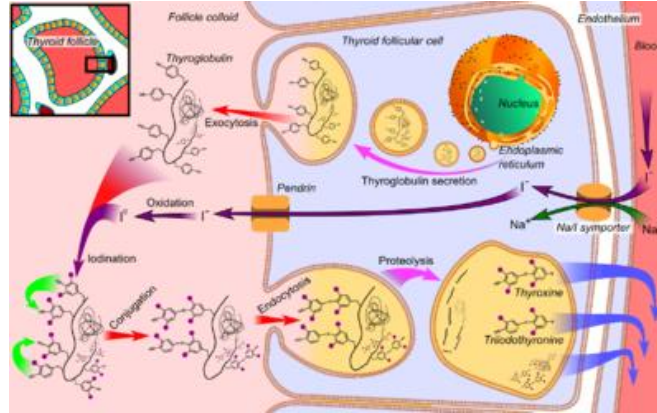
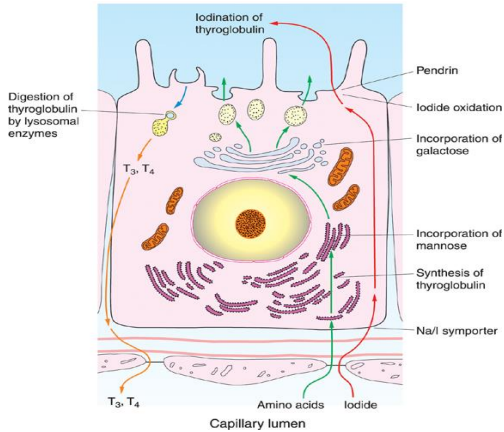
B- Para-follicular cells. → few in number, larger in size.

2. Colloid: central colloid- filled lumen.
N.B. Each follicle is surrounded by thin basal lamina.



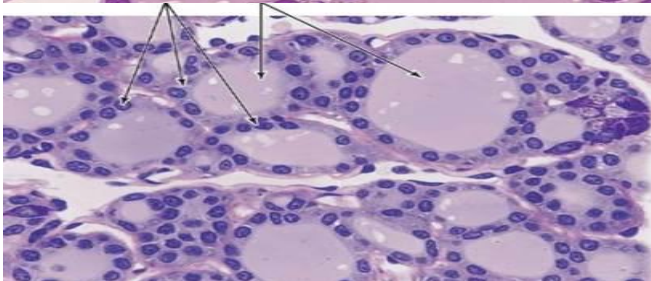
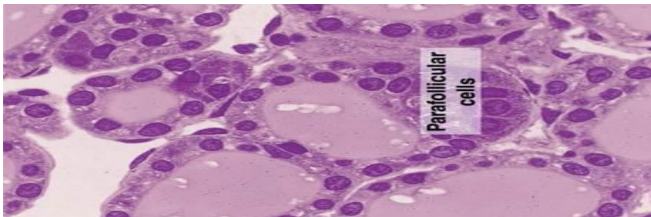
+ Follicular (principal) cells.

■ It's Function is to synthesize T4 & T3.



Light Microscope:

- **Simple cuboidal cells.**
- Round nucleus with prominent nucleoli.
- Basophilic cytoplasm.
- Apical surface reaches the lumen of the thyroid follicle.

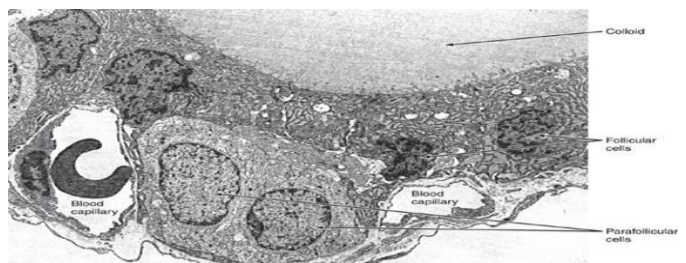


Electronic Microscope

- Mitochondria.
- Rough Endoplasmic Reticulum.
- **Supranuclear** Golgi Complex.
- Numerous apically-located lysosomes.
- Numerous dispersed small vesicles. "contain newly formed **thyroglobulin**"

Thyroglobulin: a protein in the thyroid gland, from which thyroid hormones are synthesized.

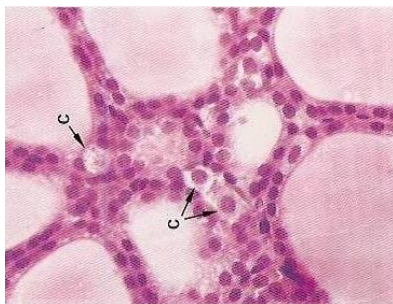
Numerous apical short microvilli. T_c increase surface area.



+ PARAFOLLICULAR CELLS (CLEAR CELLS) (C-CELLS)

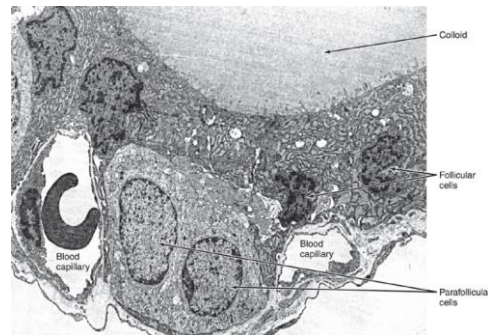
Light microscope

- Pale-stained cells (**Clear Cells**).
- Are found singly or in clusters in between the follicular cells.
- **Unlike follicular cells, their apices do not reach the lumen of the lumen of the follicle.**
- Are **larger** than follicular cells (2-3 times).
- Represent only 0.1% of the epithelial follicular cells.
few in number, larger in size.
- Have a round nucleus.



Electron microscope

- Mitochondria.
- Rough endoplasmic reticulum (moderate).
- Well-developed Golgi.



Function

Secrete **calcitonin** (decrease blood calcium level).



MCQs

1c
2c
3b
4a
5b
6c

1) Which one of these features does not found in para-follicular cells?

- a. Their apices do not reach the lumen of the follicle.
- b. larger than follicular cells
- c. Their apices reaches the lumen of the thyroid follicle

2) What is the epithelium lining of thyroid gland?

- a. simple squamous epithelium
- b. Simple Columnar Epithelium
- c. -Simple Cuboidal Epithelium

3) Why the nucleus of the colloid does not appeared?

- a. Because it's not exist.
- b. Due to its homogenous mixture

4) which one of the following secrete Calcitonin?

- a. Parafollicular cells
- b. Follicles

5- Which of the following is not a histological structure found in parathyroid gland?

- a. fenestrated blood capillaries
- b. colloid
- c. reticular fibers.

6) which one of the following cells secrete parathyroid hormone?

- a) Oxyphil cell
- b) Parafollicular cells
- c) Chief cells



For any question or suggestion:
histology435@gmail.com

Done by:
Areeb AlOgaiei
Noura AlTawil
Lojain Alsiwat
Shadn AlOmran
Hanan Alabdullah
Team leaders:
Areeb AlOgaiei
Fawzan AlOtaibi

Thanks you for checking
our work, Good luck.
-Team histology.



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