PITUITARY GLAND

Objectives:

- The microscopic structure of the different parts of the pituitary gland in correlation with their functions.
- The hypophyseal portal circulation components and significance.

- **Editing file**
- **Important**
- **Doctor notes / Extra**

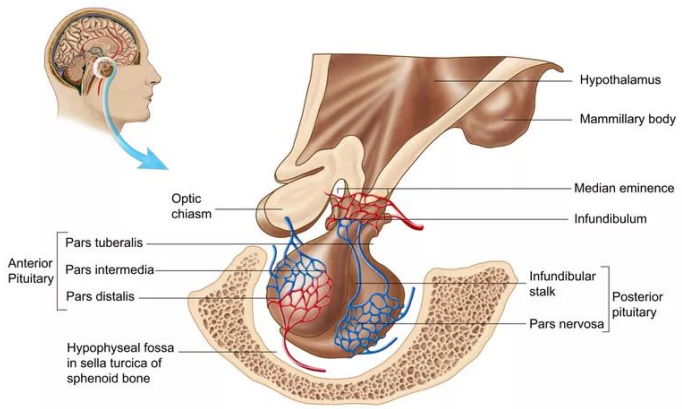
PITUITARY GLAND

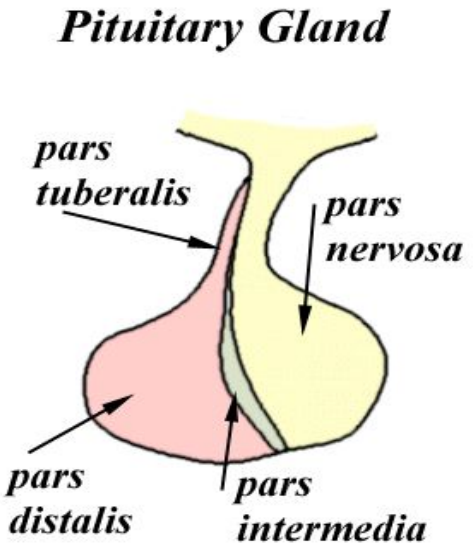
ADENOHYPOPHYSIS CEREBRI:
Adeno=Gland

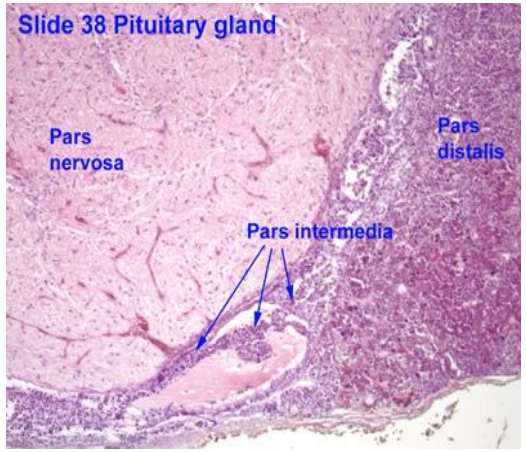
- **Pars Distalis (pars anterior)**
- Pars Tuberalis
- Pars Intermedia

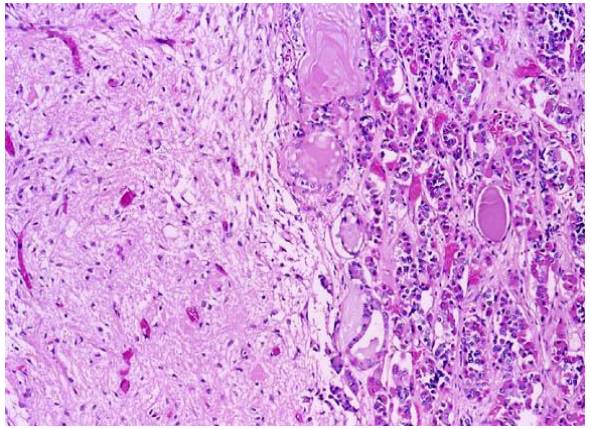
NEUROHYPOPHYSIS CEREBRI:

- Median eminence
- Infundibulum: Neural (Infundibular) Stalk
- **Pars Nervosa**









I- Adenohypophysis Cerebri

Pars distalis: Types of parenchymal cells

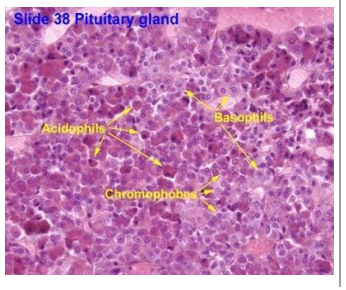
Chromophils

1- Acidophils:

- Somatotrophs (GH cells). Growth hormone(most common type)
- Mammotrophs (Prolactin cells): Increase during lactation. . Milk formation hormone

2- Basophils:

- Thyrotrophs (TSH Cells) Thyroid stimulated hormone
- Corticotrophs (ACTH cells) Adrenocorticotropic hormone
- Gonadotrophs (Gonadotropic cells) (FSH, LH) Follicle Stimulating Hormones, Luteinizing hormone

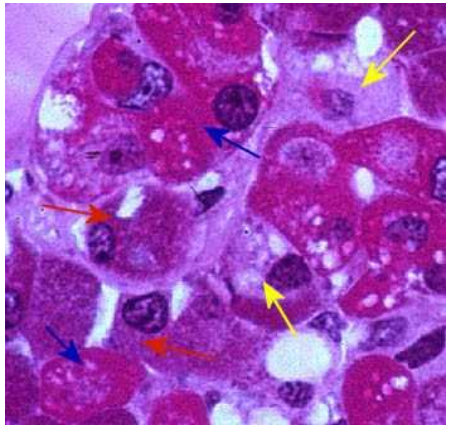


Chromophobes cytoplasm does not stain

may represent:

- stem cells.
- degranulated chromophils.
- degenerated cells.

Blue arrow: acidophils
Red arrow: basophils
Yellow arrow: chromophobes



Blood supply: extra, was in 436 lecture but removed

(1) Superior Hypophyseal Arteries (Rt & Lt): To median eminence & Neural stalk
Hypophyseal Portal System : It carries neurohormones from median eminence to adenohypophysis.

- 1ry capillary plexus of fenestrated capillaries
- Hypophyseal portal Veins (or venules)
- 2ry capillary plexus of capillaries in adenohypophysis

(2) Inferior Hypophyseal. Arteries (Rt & Lt):
Mainly to pars nervosa, They are **Not participating** in hypophyseal portal circulation.

II- Neurohypophysis Cerebri

Pars nervosa content :

1- unmyelinated axons

- Unmyelinated axons of secretory neurons situated in supraoptic & paraventricular nuclei (i.e. Axons of hypothalamohypophyseal tract).

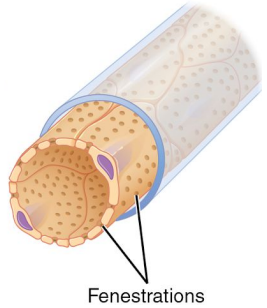
Function :
Storage & release of:

- Vasopressin (ADH); by supraoptic nuclei
- Oxytocin; by paraventricular nuclei

Oxytocin work in mammary gland for milk ejection (by contraction of myoepithelial cell, located around the acini)

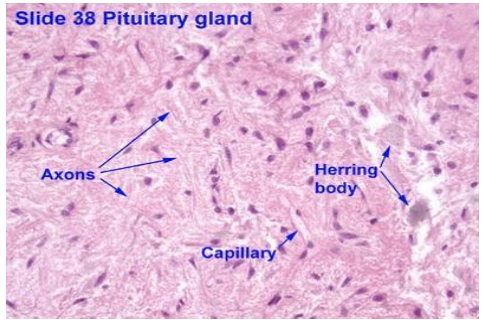
2- fenestrated blood capillaries.

The walls of their endothelial cells have pores (fenestrae) These pores are **covered by diaphragm.**
Cardio flashback :)



3. Herring bodies
(Vesicles)

- Are distensions of the axons in p. nervosa.
- Representing accumulation of neurosecretory granules at axon termini and along the length of the axons in p. nervosa.



4. Pituicytes:

Are glial-like cells in p. nervosa.

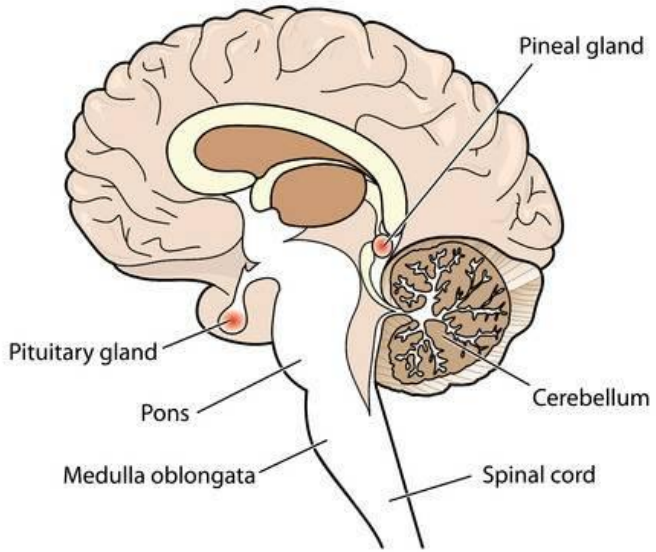
Structure:
Have numerous cytoplasmic Processes.

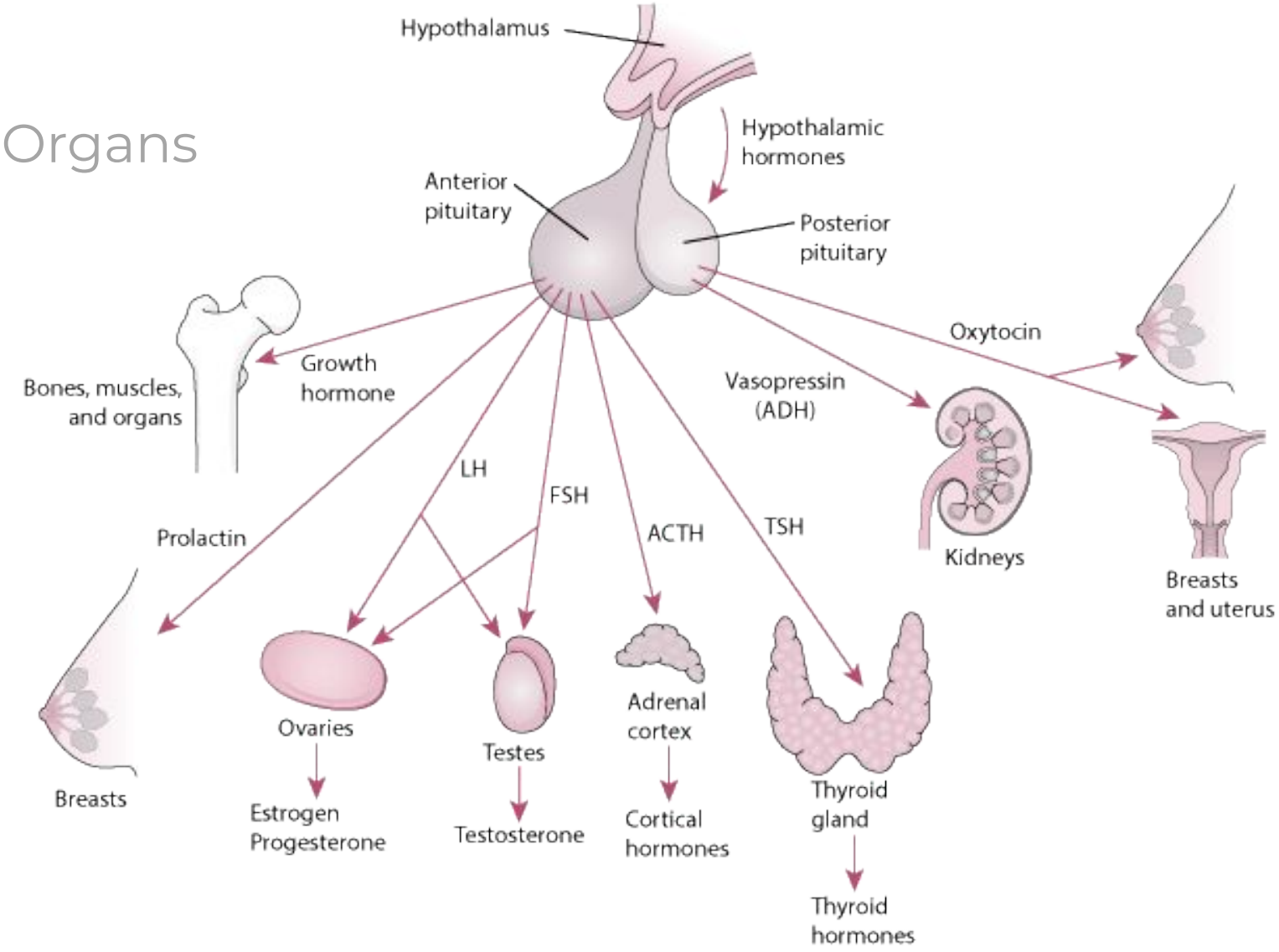
Functions:
Support the axons of the p. nervosa.

N.B. No secretory or neuronal cells in pars nervosa.

Extra:

The Pituitary and Its Target Organs





Quiz

Q1 : Which of the following cells belong to the basophils of pars distalis?
A. Chromophobes
B. Gonadotropins
C. Somatotrophs
D. Mammotrophs

Q2: Which one of the following structures is found in pars nervosa?
A. Chromophobes
B. Chromophils
C. Pituicytes
D. Prolactin cells

Q3: Corticotrophs contains which cells ?
A. ACTH cells.
B. TSH cells
C. GH cells
D, Prolactin cells

Q4 : The cell bodies of hypothalamohypophyseal tract are situated in?
A. Supraoptic nucleus
B. Suprachiasmatic nucleus
C. Dorsomedial nucleus
D. Lateral preoptic nucleus

Q5: Which type of blood capillaries is found in pars nervosa
A. fenestrated blood capillaries without diaphragm
B. fenestrated blood capillaries with diaphragm
C. Sinusoidal blood capillaries
D. Continuous blood capillaries

Which one of the following hormones is released by posterior pituitary gland ?
A. LH
B. Prolactin
C. Oxytocin
D. ACTH

1.B 2.C 3.A 4.A 5.B 6.C

Team Leaders

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Good luck