

ADRENAL GLAND

Objectives:

The students should be able to:

1. Differentiate between adrenal cortex and medulla.
2. Identify the histological features of each cortical zone and its cells.
3. Identify the histological features of the medullary cells.

Adrenal gland

It is formed of:

A. Stroma.

B. Parenchyma: that is divided into

I. Cortex that is composed of:

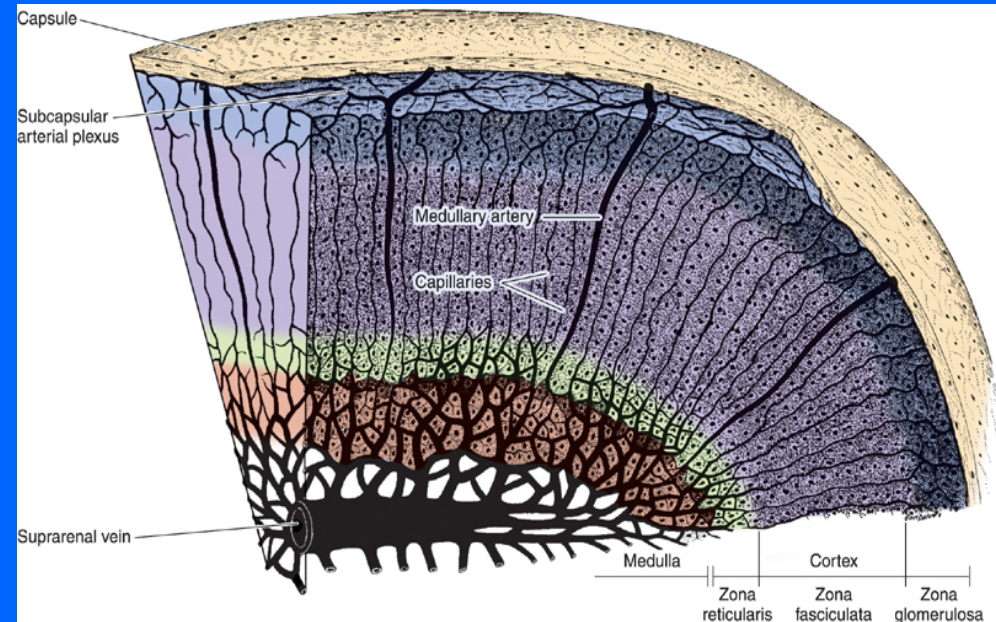
A-Zona glomerulosa.

B-Zona fasciculata.

C-Zona reticularis.

II. Medulla

Factors acting on the gland		Hormones secreted
Zona glomerulosa	Angiotensin and corticotropin (ACTH)	Mineralocorticoids (aldosterone)
Capillaries		
Zona fasciculata	Corticotropin	Glucocorticoids (cortisol and corticosterone)
		Androgens? (dihydroepiandrosterone, androstenedione)
Zona reticularis	Corticotropin	Glucocorticoids?
		Androgens



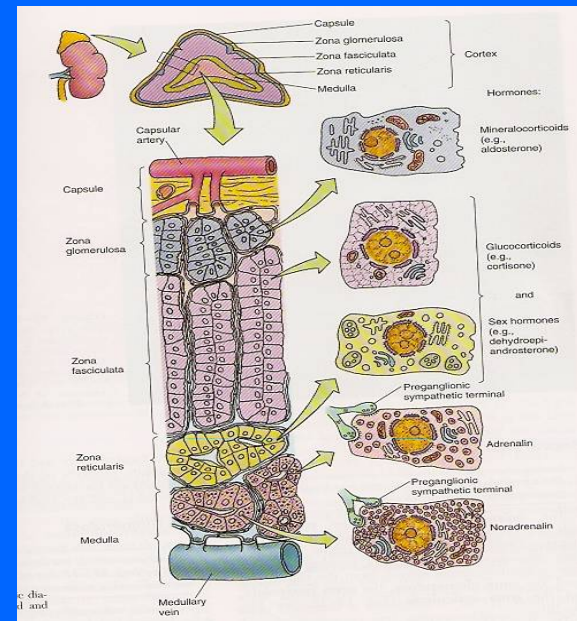
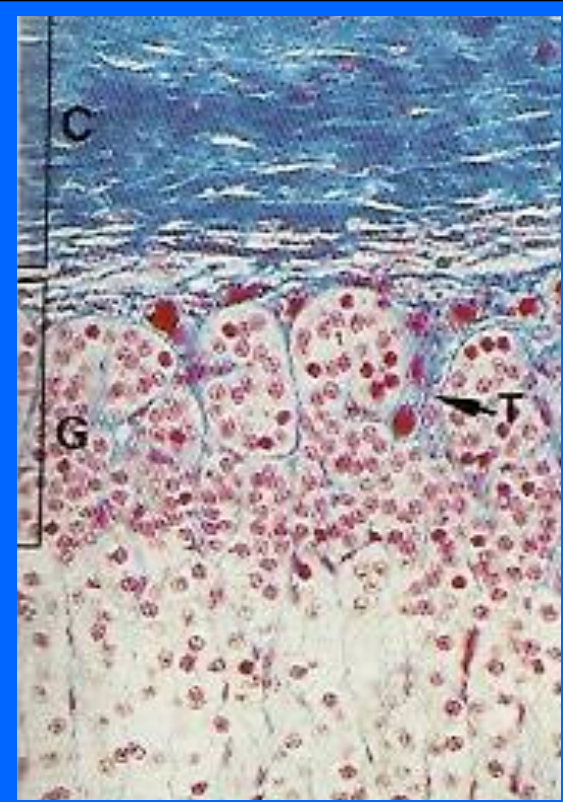
Adrenal cortex:

1. zona glomerulosa

*Is formed of clusters of small columnar cells that are rich in SER and mitochondria.

*Produces mineralocorticoids e.g. aldosterone hormone

(Reabsorb all the remaining sodium, and passively the chloride, from the lumen of the distal renal tubules into the renal interstitium. In addition, potassium and hydrogen ions are actively secreted into the lumen).



Adrenal cortex:

2. zona fasciculata.

(spongiocytes)

*It is the intermediate and the largest layer of the cortex.

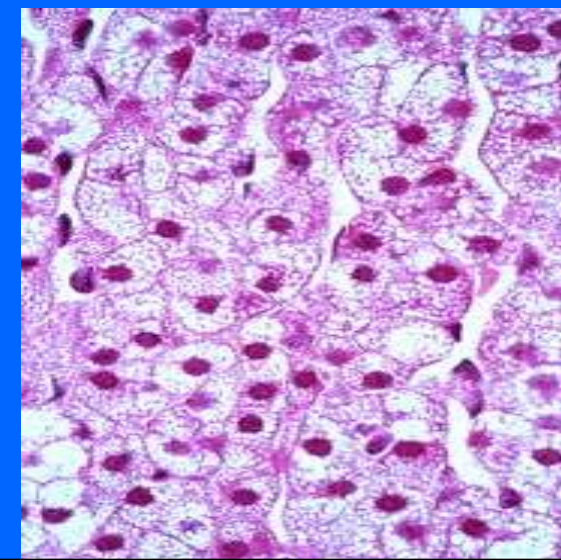
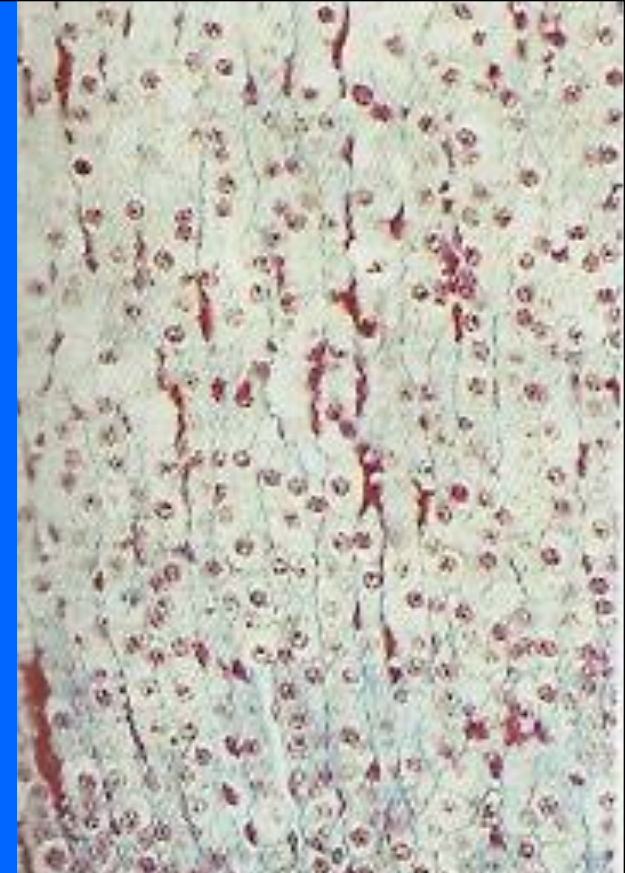
*It is formed of columns of large polyhedral cells that are separated by longitudinal sinusoidal capillaries.

*Its cells are rich in lipids so they appear empty in sections (spongiocytes).

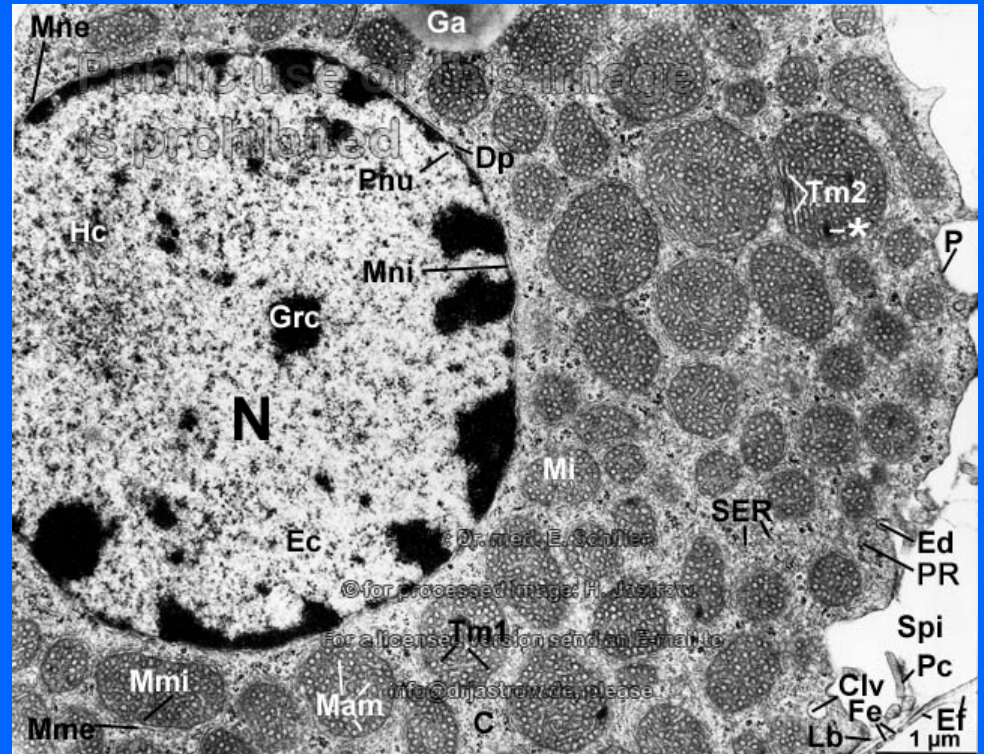
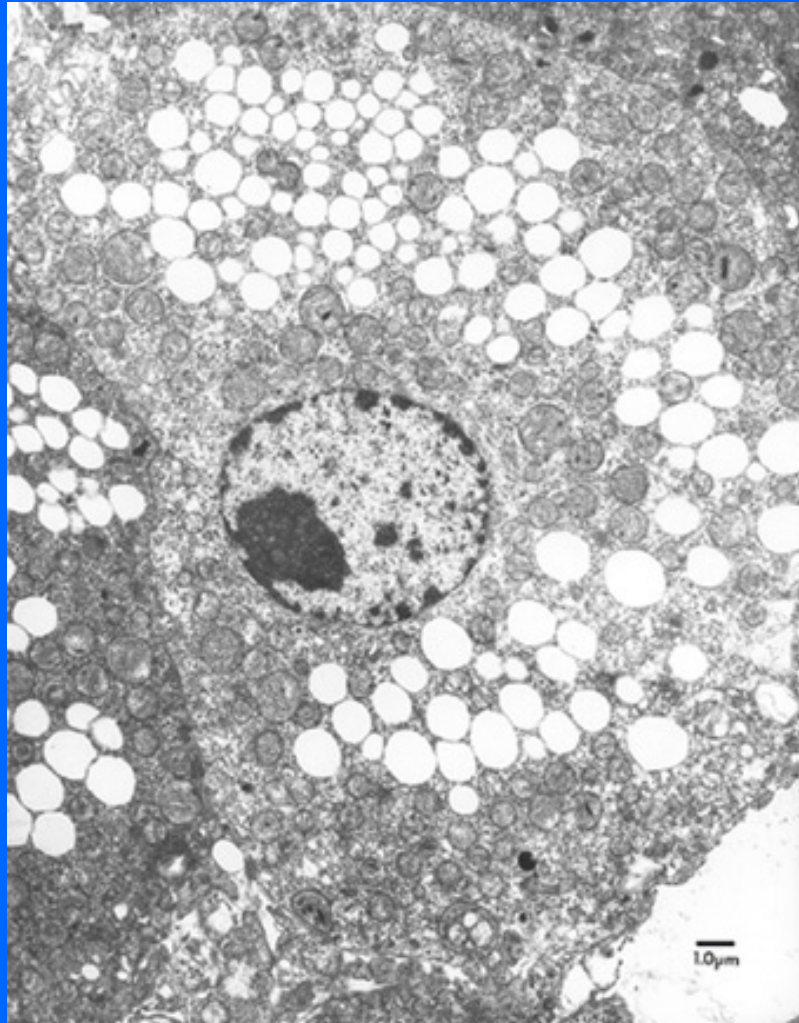
*Its cells are rich in mitochondria (with tubular cristae),SER and lipofuscin pigments.

*Its cells secrete glucocorticoids.

*It is regulated by ACTH of pituitary.



E/M of spongiocytes.



Adrenal cortex:

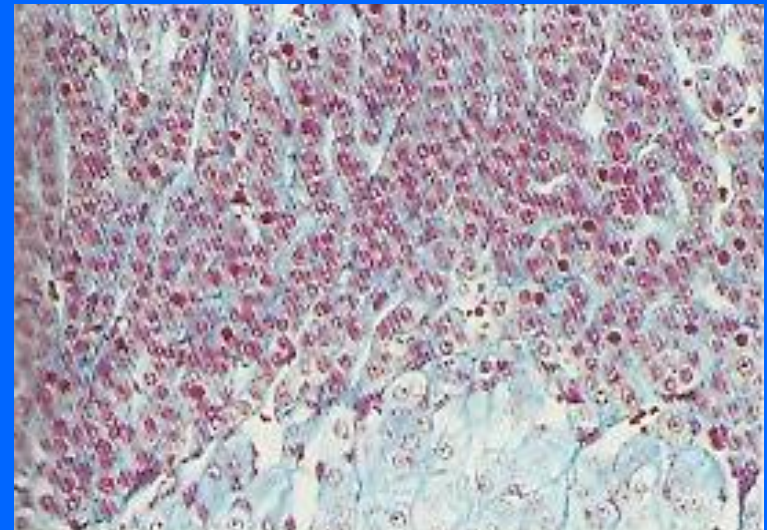
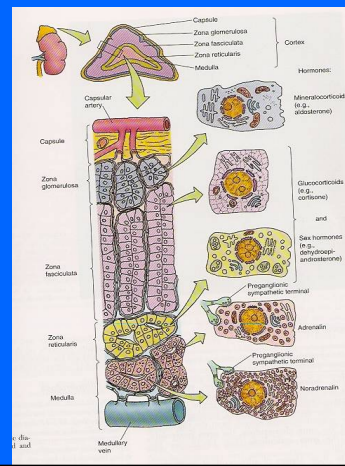
3. zona reticularis.

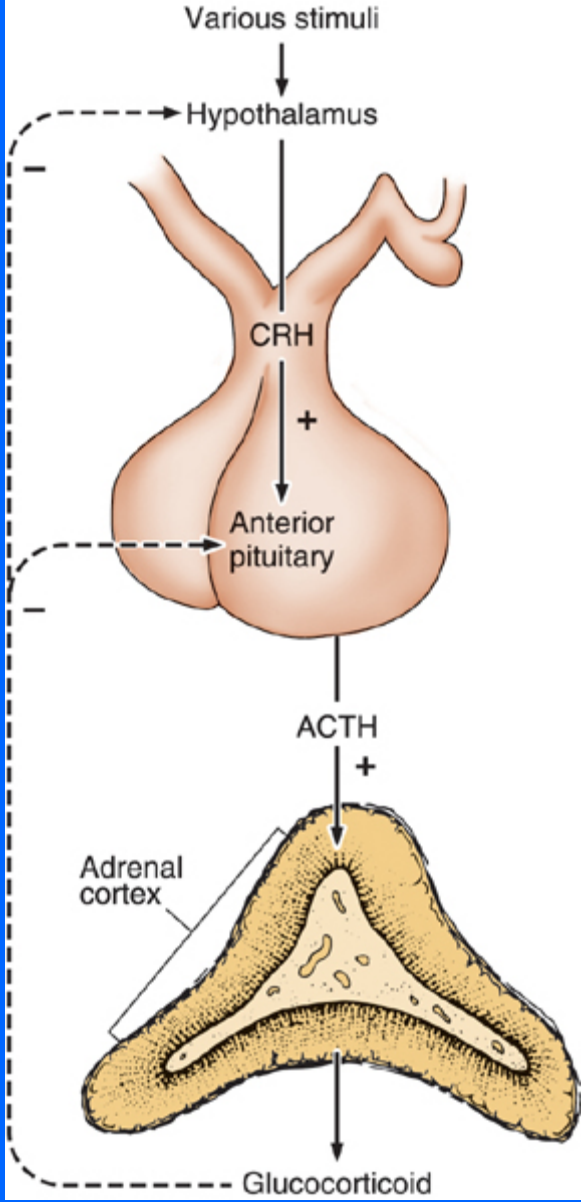
*It is the innermost layer of adrenal cortex.

*It is formed of anastomosing cords of deep acidophilic cells.

*Its cells contains few lipofuscin and lipid droplets.

*The cells secrete androgens.





Medulla of adrenal gland

*It is the central portion of the adrenal gland.

*It is completely invested with adrenal cortex
(not separated from it by CT. septa)

*It contains:

1. Chromaffin cells (Pheochromocytosis):

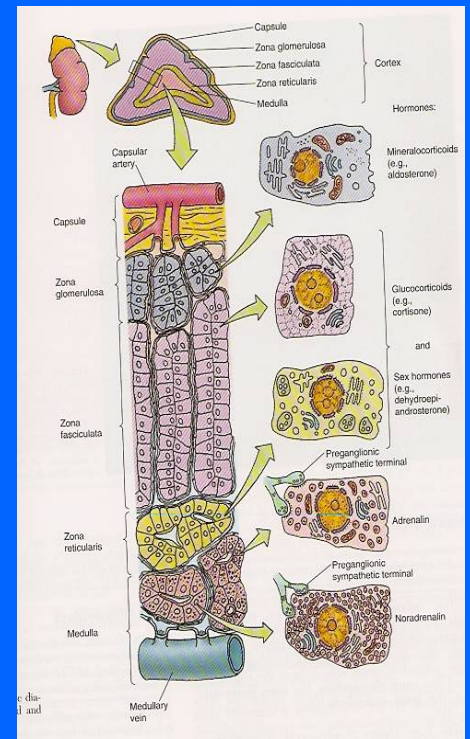
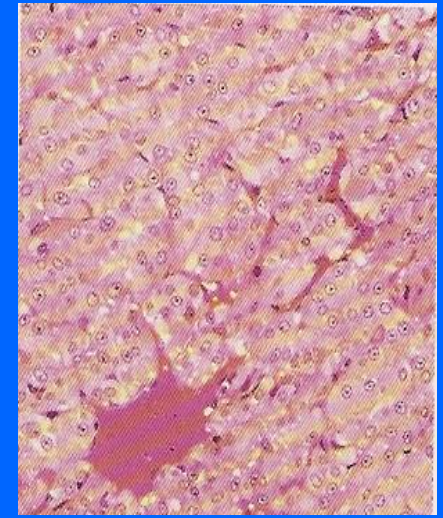
Contains granules of catecholamine as
that of sympathetic nervous system.

(They produce epinephrine and norepinephrine).

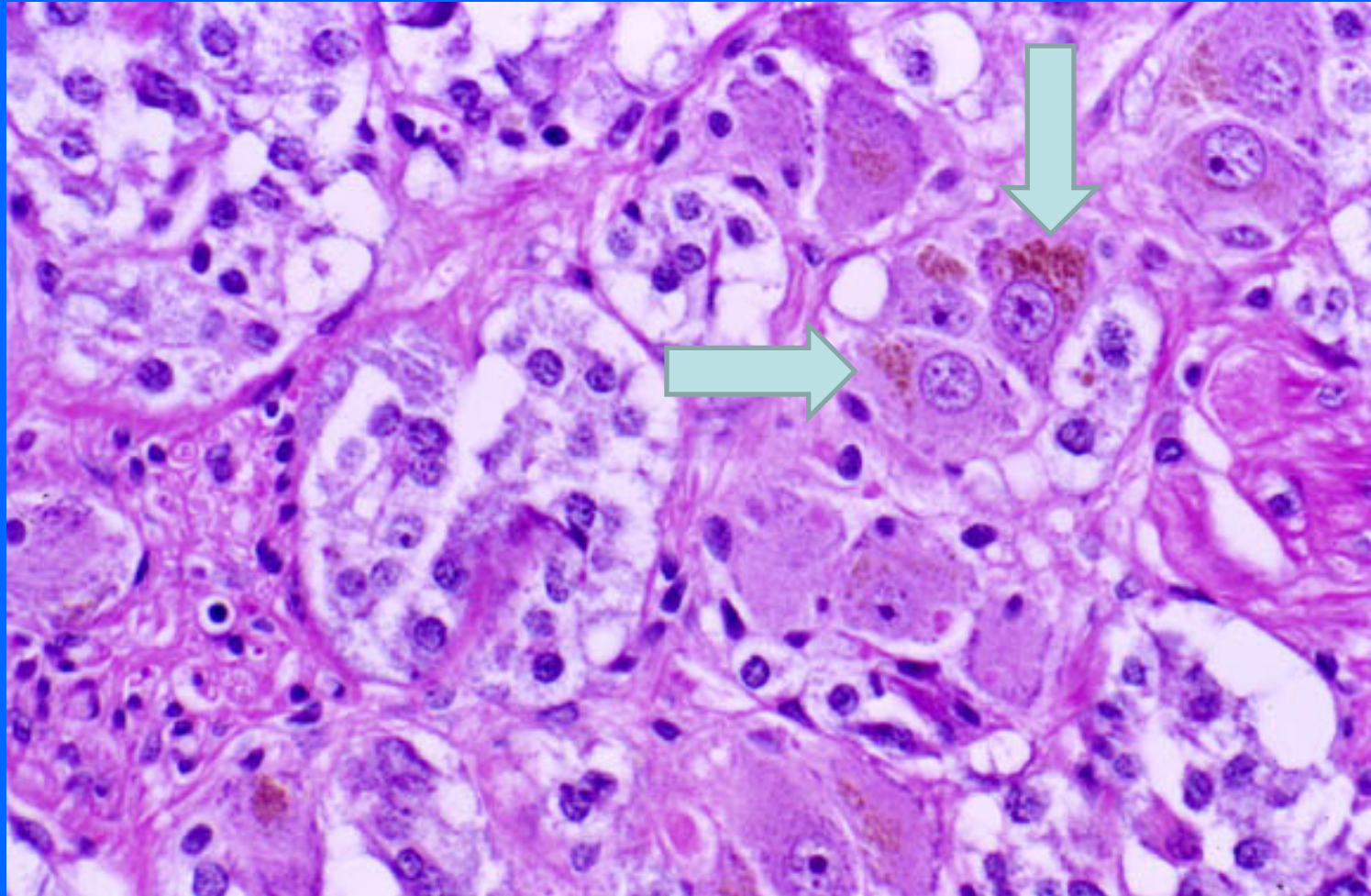
They stain deep brown with chromic salts.

2. Sympathetic ganglion cells :

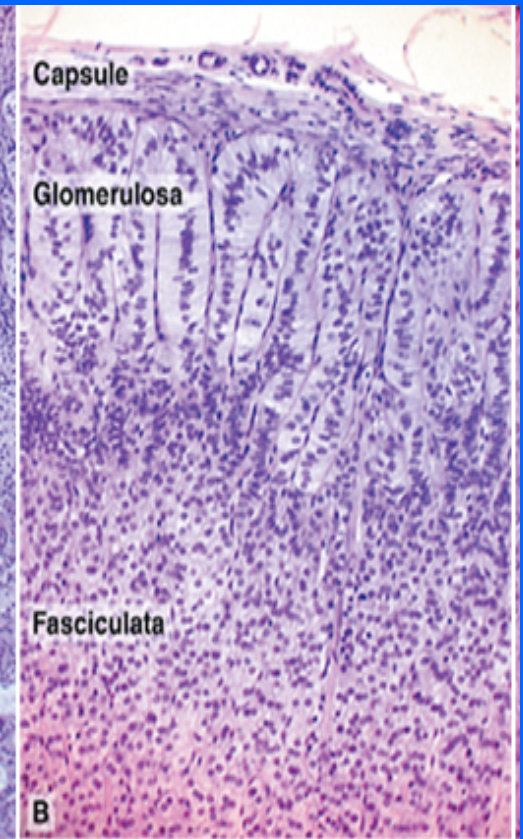
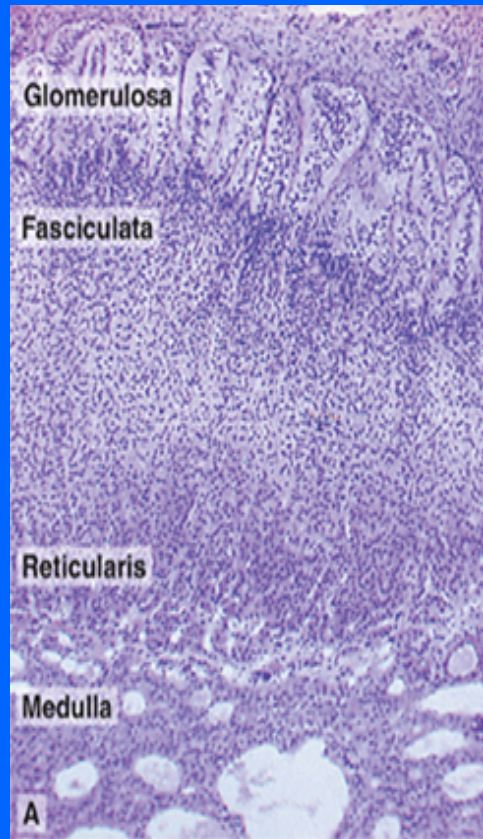
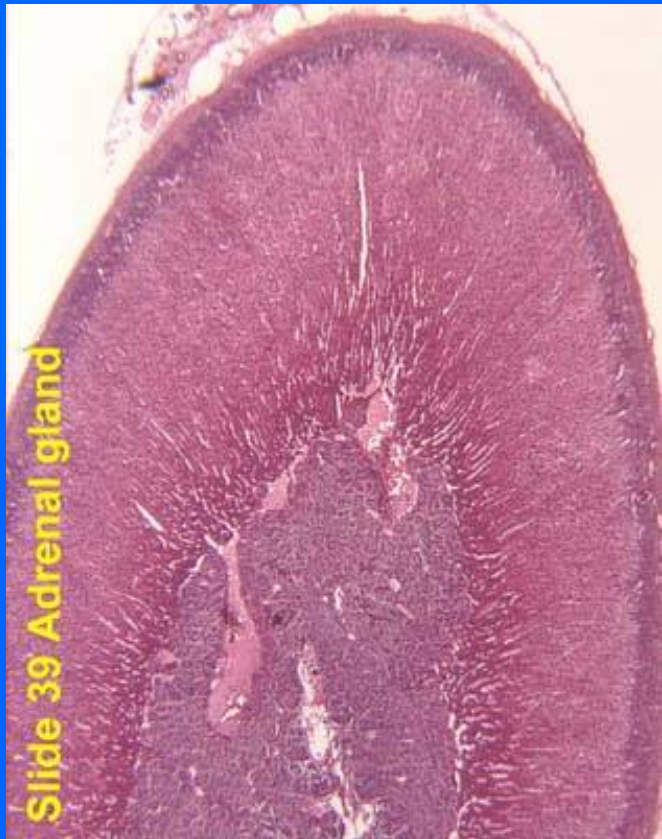
are sympathetic nerve cells.



NEURONS IN ADRENAL MEDULLA



Adrenal Gland (cortex and medulla)



BEST WISHES