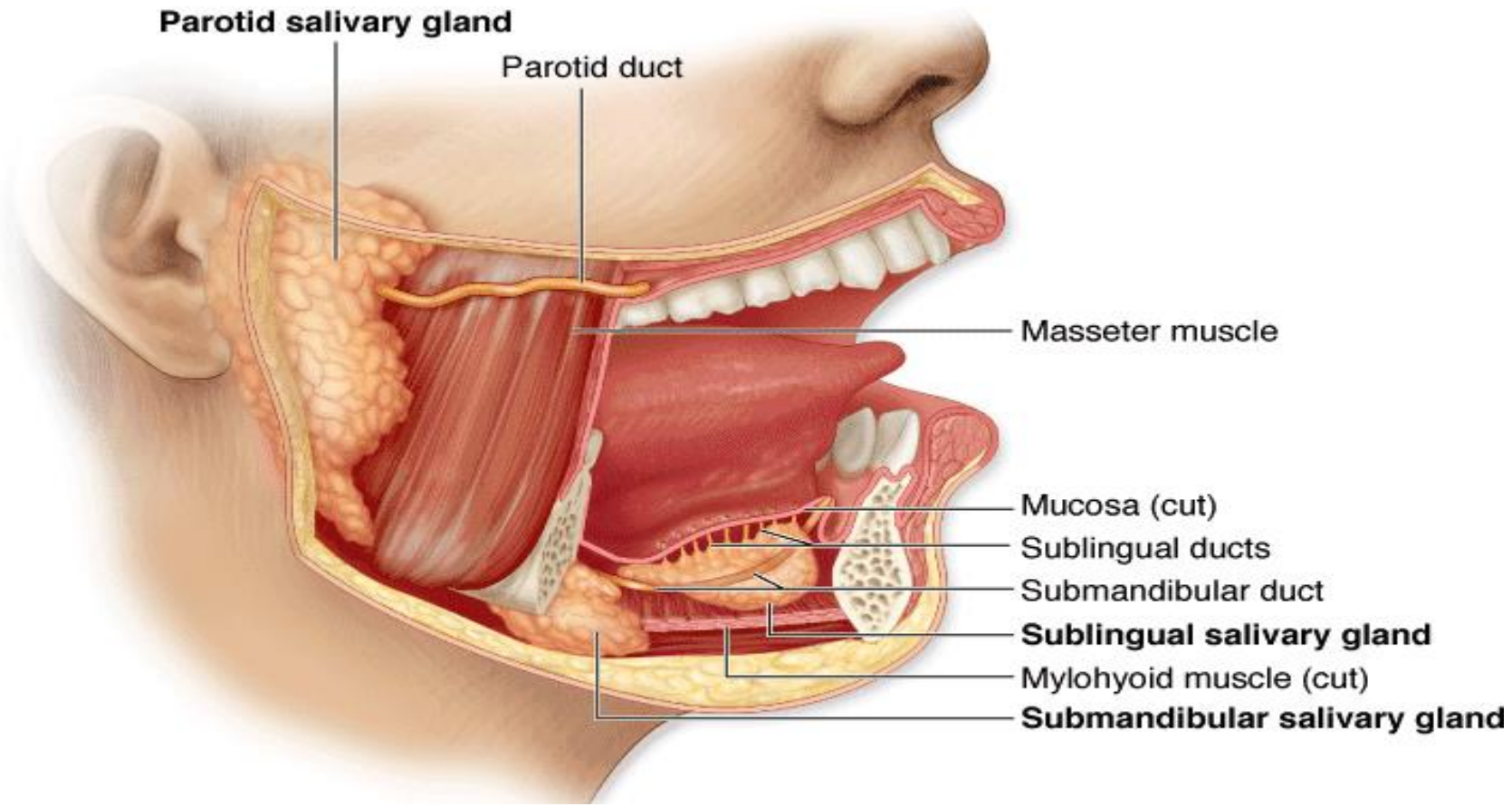
Salivary glands

Pancreas

Liver

Salivary Glands



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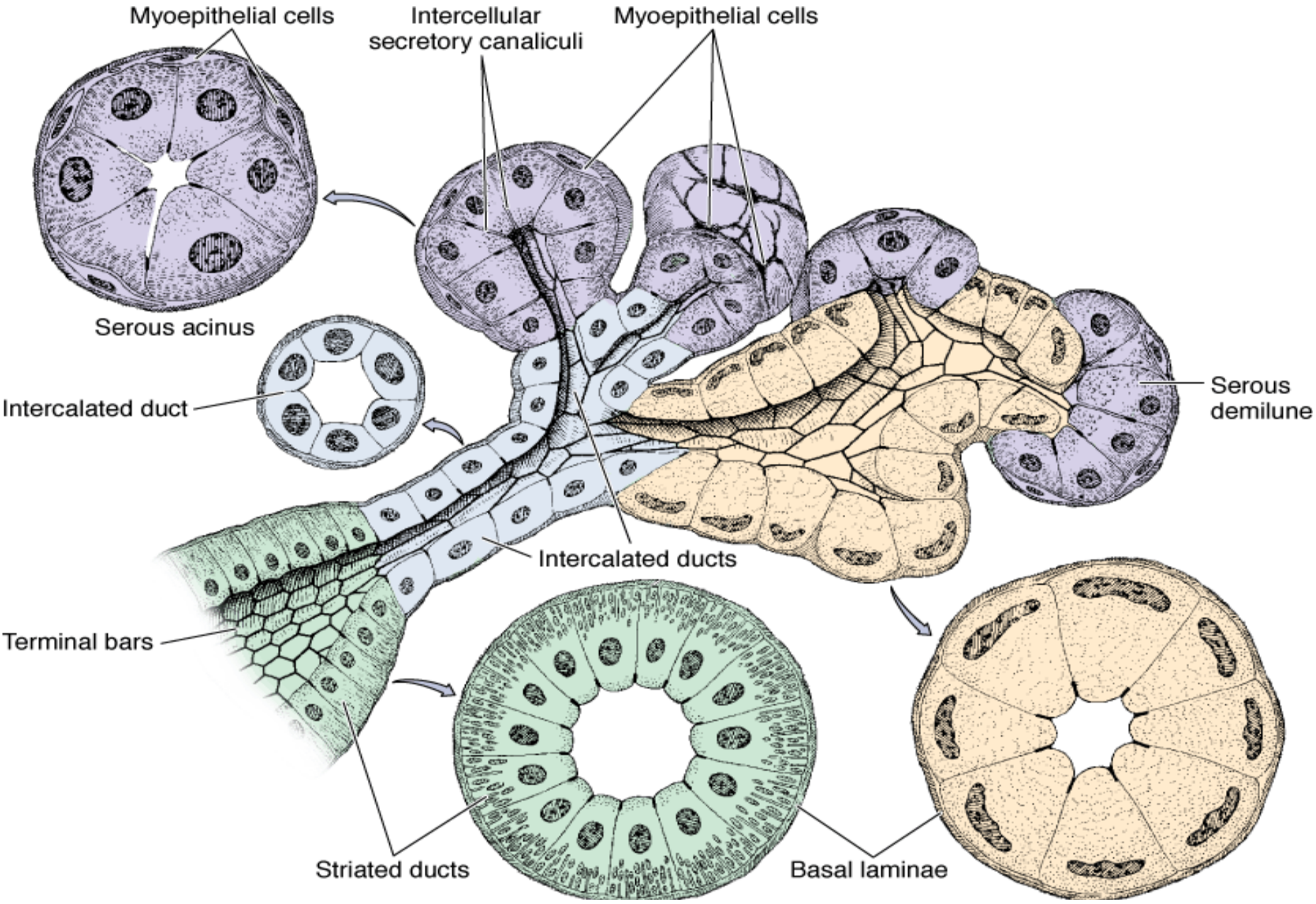
Ekstramural glands of the digestive system include the major **salivary glands, the pancreas ,the liver** and gallbladder.Each of these glands has numerous functions aiding the digestive process.

By producing **saliva** , the salivary glands facilitate the process of tasting food , initiate its digestion and permits its swallowing. These glands also protect the body by secreting the antibacterial agents lysozyme and lactoferrinas well assecretory Ig A.

Salivary glands produce saliva, which has digestive ,lubricating and protective functions ph 6.5-6.9 usually.
Parotid; the largest salivary gland, this gland is said to produce a purely serous secretion and watery. ptyalin and secretory Ig A levels are high in tis gland.
The Submandibulary and **sublingual** glands produces a seromucous secretion. Secretion of each gland is either serous, seromucous, mucous depending on its glycoprotein mucin content.

Serous cells are polarized protein-secretingcells,usually pyramidal in shape,adjacent cells are joined together by junctional complexes and usually forma spherical mass of cells called on acinus, with a very small lümen in the center.Acini andduct systemresemble grapes. Serous acinar cells largely produce digestive enzymes and other proteins. Serous cells are typical protein-secreting cell,with raunded nuclei,accumulation of rough ER in the basal third.and apex filled with protein-rich secretory granules.



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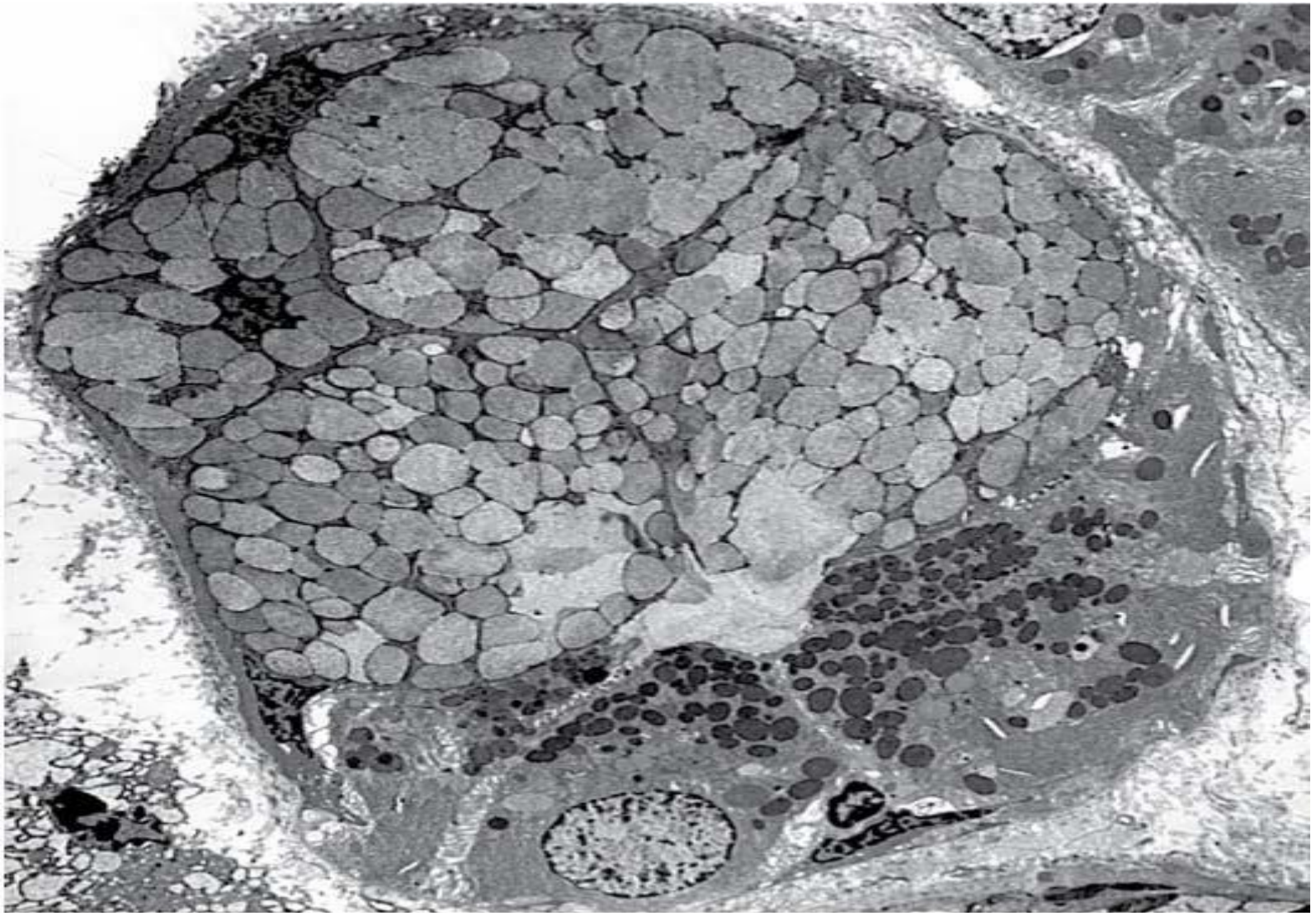

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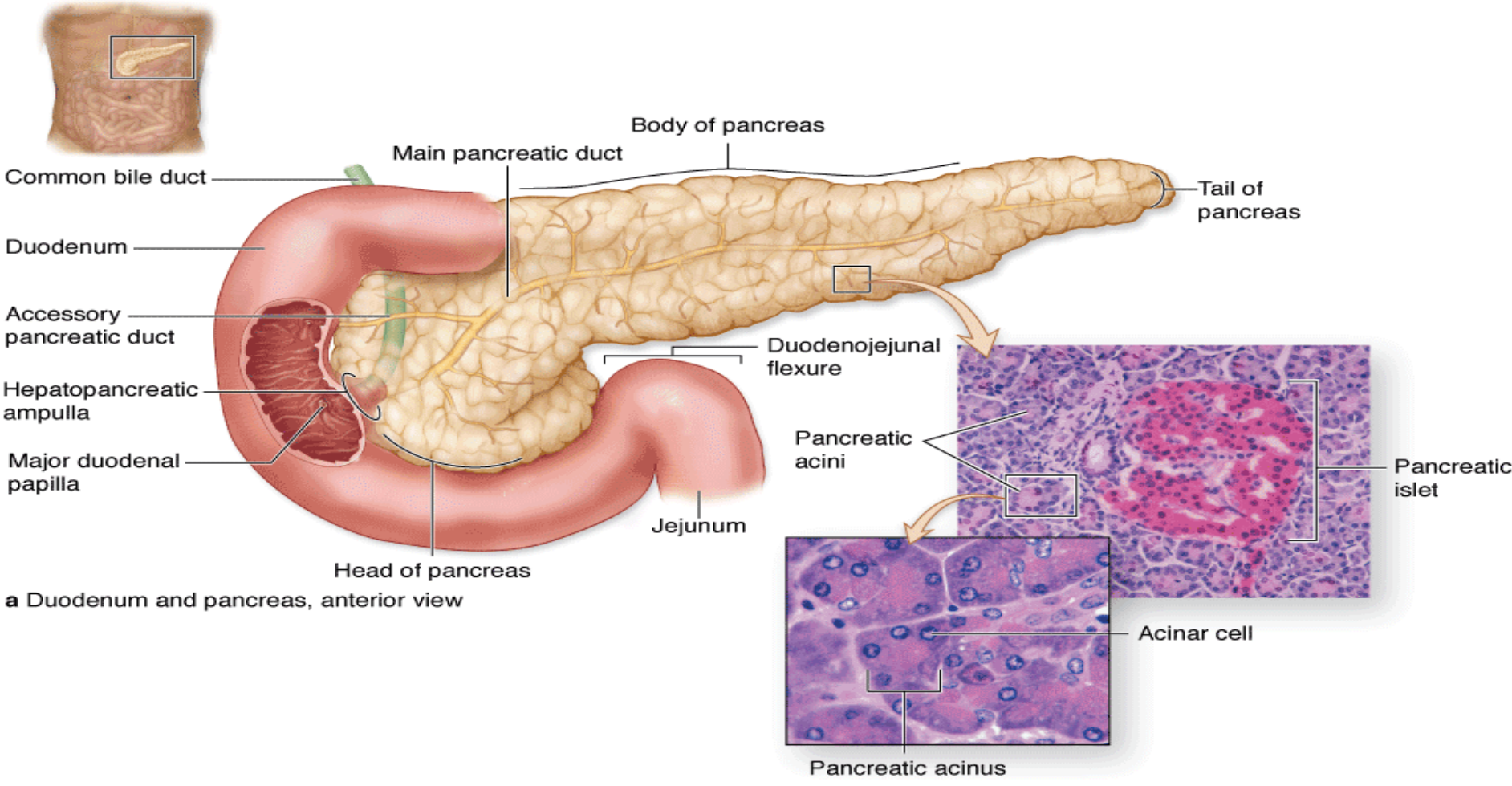
The nuclei of mucous cells, flattened with condensed chromatin,are located near the bases of the cells. Mucous cells are more cuboidal or columnar in shape,with nuclei pressed toward the bases of the cells. Mucous cells produces mostly mucins. Myoephytel cells are found inside the basal lamina of the secretory units and they prevent distention of the endpiece when the lümen fills with saliva and their contraction accelerates secretion of the product.

Parotid gland located in each check near the ear. This gland composed exclusively serous cells surrounding very small lumens. Serous cells contain secretory granules with abundant alfa amilase.

Submandibular gland is a branched tubuloaciner gland. Secretory products containing both mucous andserous cells. Most of secretory units in this gland are serous aciner,some of them mucous tubules capped with serous cells.these caps are called serous demilunes.

Sublingual gland; formed serous and mucous cells.this gland has got most mucous cells. İn here mucous cells predominate. This gland secrete amylase and lyzozyme.

Pancreas



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Pancreas produces enzymes necessary for the digestion of fats, proteins and carbohydrates. The exocrine secretion of the pancreas are released into the lümen of duodenum, additionally the pancreas synthesizes and released endocrine hormones, including insulin, glucagon ,somatostanin , gastrin and pancreatic polypeptids.

PANCREAS: The pancreas produces exocrine and endocrine secretions. The endocrine components of the pancreas, islets of langerhans, are scattered among the exocrine secretory acini.

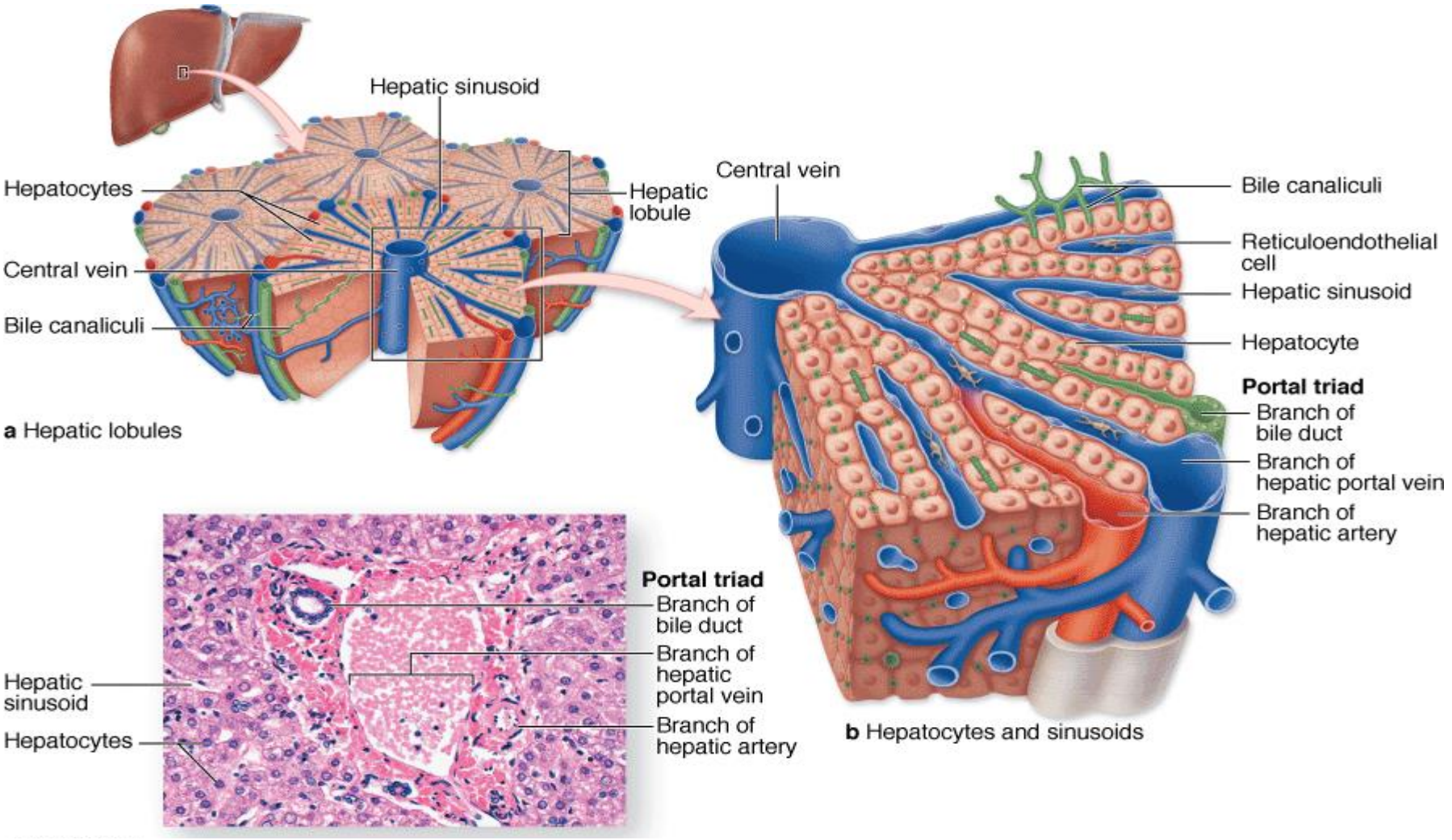
The exocrine pancreas is a compound tubuloaciner gland that produces Daily about 1200 ml fluid containing digestive proenzyme. Each aciner cell is shaped like a truncated pyramid and are typical protein-secreting cells.The number of zymogen granules present in each cell.

Exocrine pancreas secretes digestive enzymes, including several protease(tripsinogens,cymotripsinogen,proelastase,protease, kallkreinogen,amilase,lipases and nucleoses) The proteases are stored as inactive zymogens in the secretory granules of aciner cells.

Endocrine pancrease; five types of cells compose the parancyma of each islet of langerhans : beta cell,alfa cells,lamda cels,pancreatic polipeptid cells,and G cells.

İnsulin synhesis b cells:Decrease blood sugar level
Glukagon produce by alfa cells:increase blood sugar level
Somatostanin manufactured by lamda cells:Paracrine – endocrine
Gastrin released by G cells: stimulates HCI production by parietal cells of stomach
Pancreatic polipeptid is produced by pp cells : inhibit exocrine secretion of pancreas.

Liver



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Liver: The liver is completaly enveloped by peritoneum,irregular connective tissue capsule(Glisson's capsule) of the gland. The liver is composed of uniform parencymal cells, its called hepatocytes.

2. portal lobe; in histological sections,the portal lobule is defined as that triangular region whose center is the portal area and whose periphery is bounded by imaginary straight lines connecting the three surrounding central veins that form the three apices of the triangle.

3. A third conceptualization of hepatic lobules is based on blood flow from the distributing arteriole and consequently on the order in which hepatocytes degenerate subsequent to toxic or hypoxie insults.This ovoid to diamond-shaped lobule is known as the hepatic acinus(portal acinus).

There are 3 basic conceptualization of the liver lobule ; 1. The classical liver lobe; was the first defined hystologically because the connective tissue arrengement in the pig liver afforded on obvious rationale, in this concept blood flows from the perphery to the center of the lobule into the central vein.Bile, manufactured by liver cells , enters into small interceluler spaces, bile canaliculi, located between hepatocytes and flows to the periphery of the lobule to the interlobuler bile ducts of the portal areas.

Resident macrophages, known as kupffer cells, are associated with the sinusoidal lining cells in the sinusoids. Frequently phagosomes of kupffer cells contain endocytosed particulose matter and celular debris especially defunct erytrocytes that are being destroyed by these cells.

The sinusoidal lining cells are seperated from the hepatocytes by a narrow, perisinusoidal space (space of disse) and plasma escaping from the sinusoids has free Access to this space.And satellit shape fat storing cells(ito cells) have been noted in this space.Additonally, pit cells, mice ,rats and human liver have been noted. These cells, believed to be natural killer cells.

The liver may have as many as hundred different functions. Most of which are performed by the hepatocytes.each of these liver cells produced not only the exocrine secretion bile but also various endocrine secretions.Liver cells detoxify drugs and toxin. The liver produce aproxymately six hundred ml- one liter bile per day. The liver maintains normal levels of glucose in the blood. It performs this functions by transporting glucose from the blood into the hepatocytes and storing it in the form of glycogen.If blood glucose levels drops below normal,hepatocytes hydrolysed glycogen into glucose and transport it out of the cells into the space of disse.

Bile , the exocrine secretion of liver is required for proper absorbtion of lipids, whereas many of the liver endocrine functions are essential for life.

Liver Functions:

1) Bile – exocrine function
2)syntesis of blood proteins and coagulations factors
3)manufacture of vitamins
4)detoksification of bloodborne toxins.
5) metabolizes many toxic drugs.

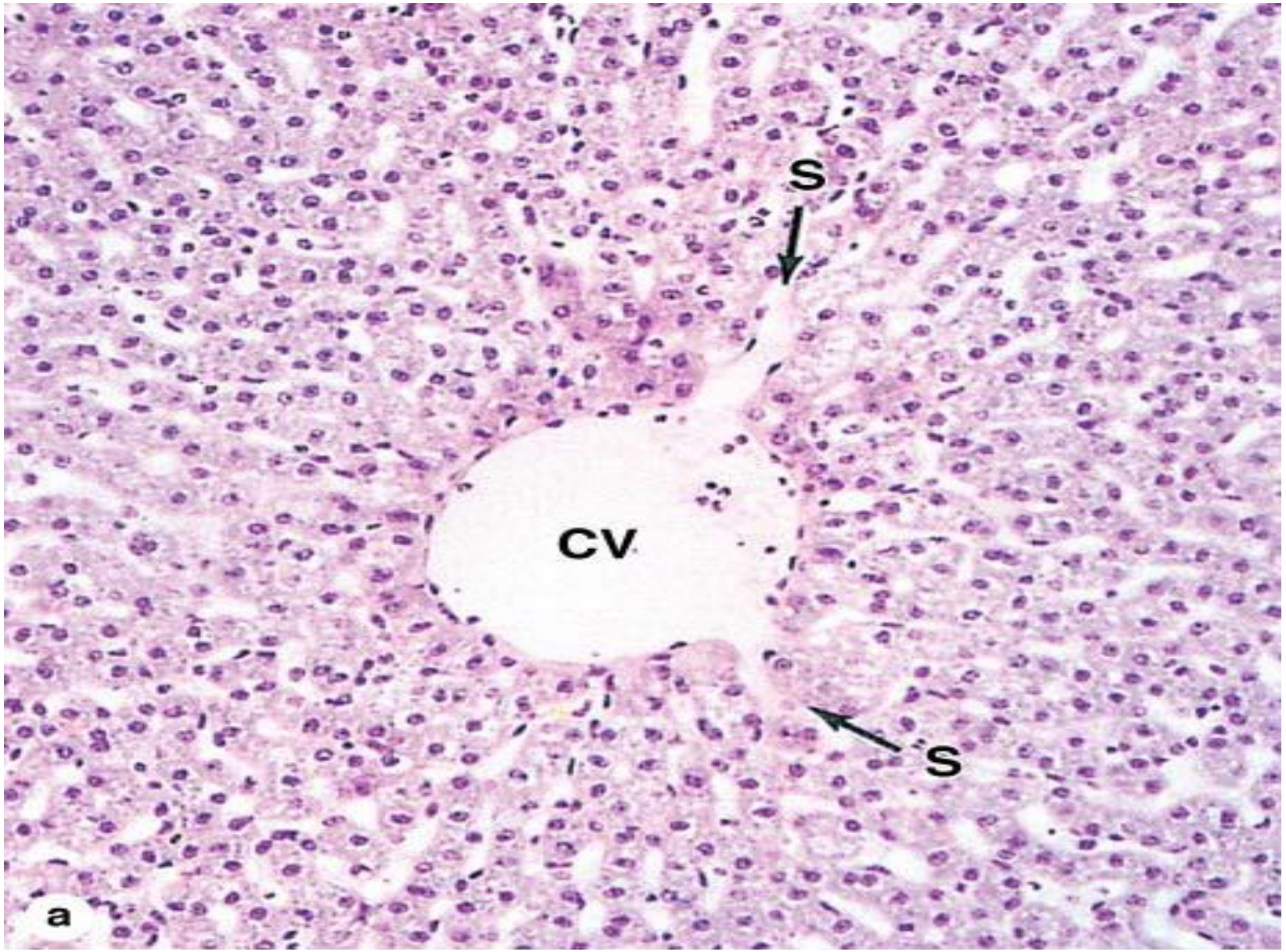
One of the most essential role of the liveris the elimination of bloodborne ammonia by converting it into urea.

Aproxymately 90% of the blood proteins are manufactured by the liver (expecially factors necessary for coagulation, fibrinogen,factor III,protrombin.)

Vitamin A is stored in the greatest amount in the liver

Drugs such as antibiotics and toxins are inactivated by in hepatocytes.

Kupffer cells,which are derived from monocytes precursor, they can phagocytose foreign particulate matter.These cells also remove cellular debris and defunct erytrocytes from the blood.



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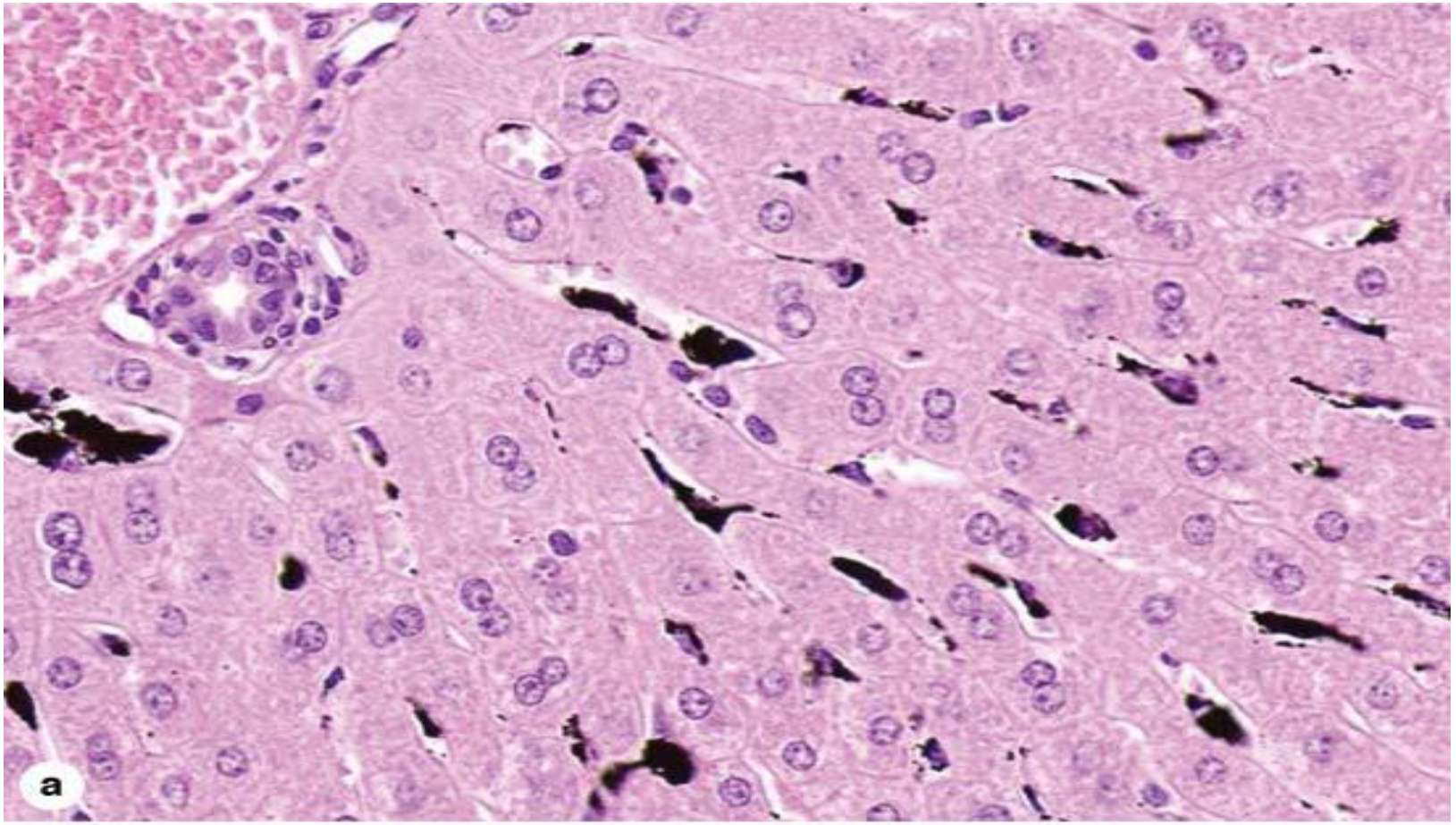

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