

Cells of Liver

There are 4 basic cell types that reside in the liver:

1. the hepatocyte
2. the stellate fat storing cell
3. the Kupffer cell
4. the liver endothelial cell.

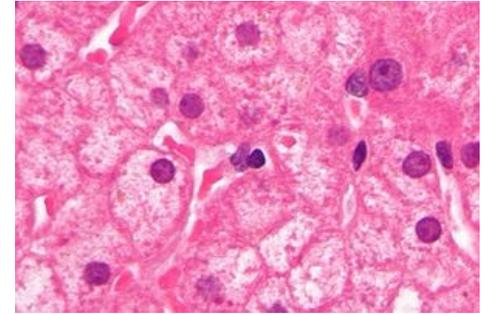
These so-called resident cells control many of the key functions in the liver, as well as its response to injury.

Hepatocyte

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Hepatocytes make up about 80% of the cells in the liver.

- are large polyhedral **epithelial cells**, with large round centrally located nuclei (2 or more)
- grouped in interconnected plates that are arranged into thousand of small polyhedral lobules
- store glucose in the form of glycogen , also vitamin B12, folic acid and iron
- participate in the turnover and transport of lipids.
- synthesize some of the plasma proteins (albumin, α and β globulins, prothrombin, fibrinogen
- metabolize/detoxify fat
- participate in the turnover of steroid hormones.
- regulates cholesterol level
- secrete bile (up to 1 liter per day)



hepatocyte in HE

ITO Cells

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Last update: Monday, 08 Dec 2014 at 5.23 pm.

Hepatic stellate fat storing cells (ITO cells)

- reside in close proximity to the hepatocyte (in the perisinusoidal space, not in lumen!)
- store approximately 80% of the body's supply of vitamin A and a variety of other lipids (under normal conditions)
- under conditions of liver injury, activated stellate cells are highly responsive to pro-fibrogenic factors such as transforming growth factor- β (TGF- β).
- proliferate in response to factors such as platelet-derived growth factor (PDGF)

Kupffer Cells

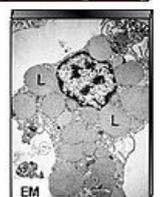
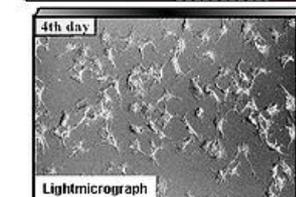
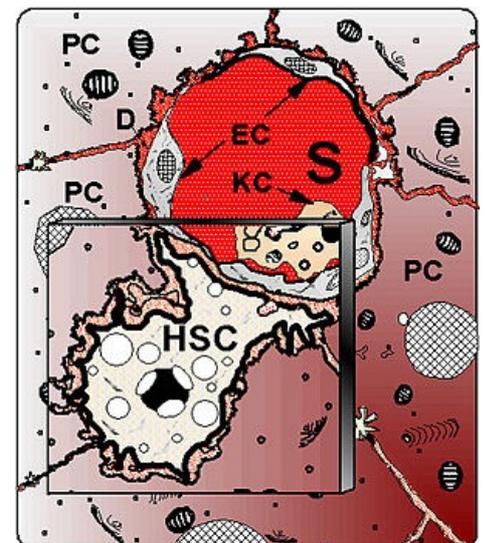
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- specialized stellate macrophages
- adhere to the sinusoidal endothelium (in the lumen of the sinusoid), mainly near portal areas (=portal triads)
- clear the blood of ingested bacterial pathogens that may enter portal blood from the gut
- remove aged erythrocytes and free heme for re-use
- act as antigen-presenting cells in adaptive immunity
- secrete cytokines and chemokines that recruit and expand the population of other proinflammatory cells in the liver.

Sinusoidal Endothelial Cells

- form the wall of the blood vessels (sinusoids) that carry blood throughout the liver
- form a single layer with spaces between each cell known as fenestra, that allow an efficient flow of essential materials to pass from the blood to
- hepatocytes and vice versa
- are rich in lysosomal enzymes needed for degrading endocytosed material

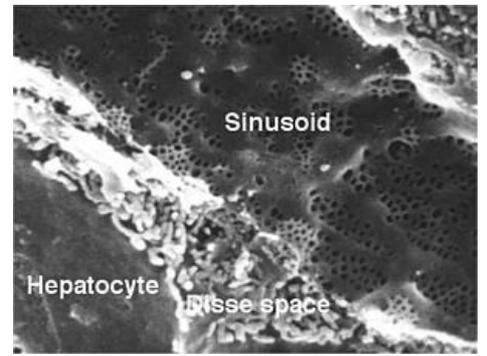
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ITO Cells

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Endothelial Cells of Liver