

# Lipids part(2)



# Triglyceride or triacylglycerol(TG):

- They are synthesized in liver or adipose tissue.
- They are ester of glycerol with three fatty acid molecules.
- glycerol is carried in the blood to the liver that having glycerol kinase enzyme which converts glycerol to glycerol-3-phosphate.
- In the liver cells glycerol-3-phosphate can be used in the synthesis of triacylglycerol, phospholipids or glucose.
- When energy reserves are high , triacylglycerols are synthesized in a process called lipogenesis.
- When energy reserves are low, triacylglycerols are degraded in a process called lipolysis by hormone sensitive lipase(HSL) to form fatty acid and glycerol.
- Fatty acid degradation : is the process in which fatty acids are broken down resulting in release of energy.



## Cholesterol:

Cholesterol: is a waxy steroid metabolite found in the cell membranes and transported in the blood plasma of all animals .

it is an essential structural component of mammalian cell membranes where it is required to establish proper membrane permeability and fluidity.

Cholesterol is a solid alcohol containing 27 carbon atoms and one hydroxyl group.

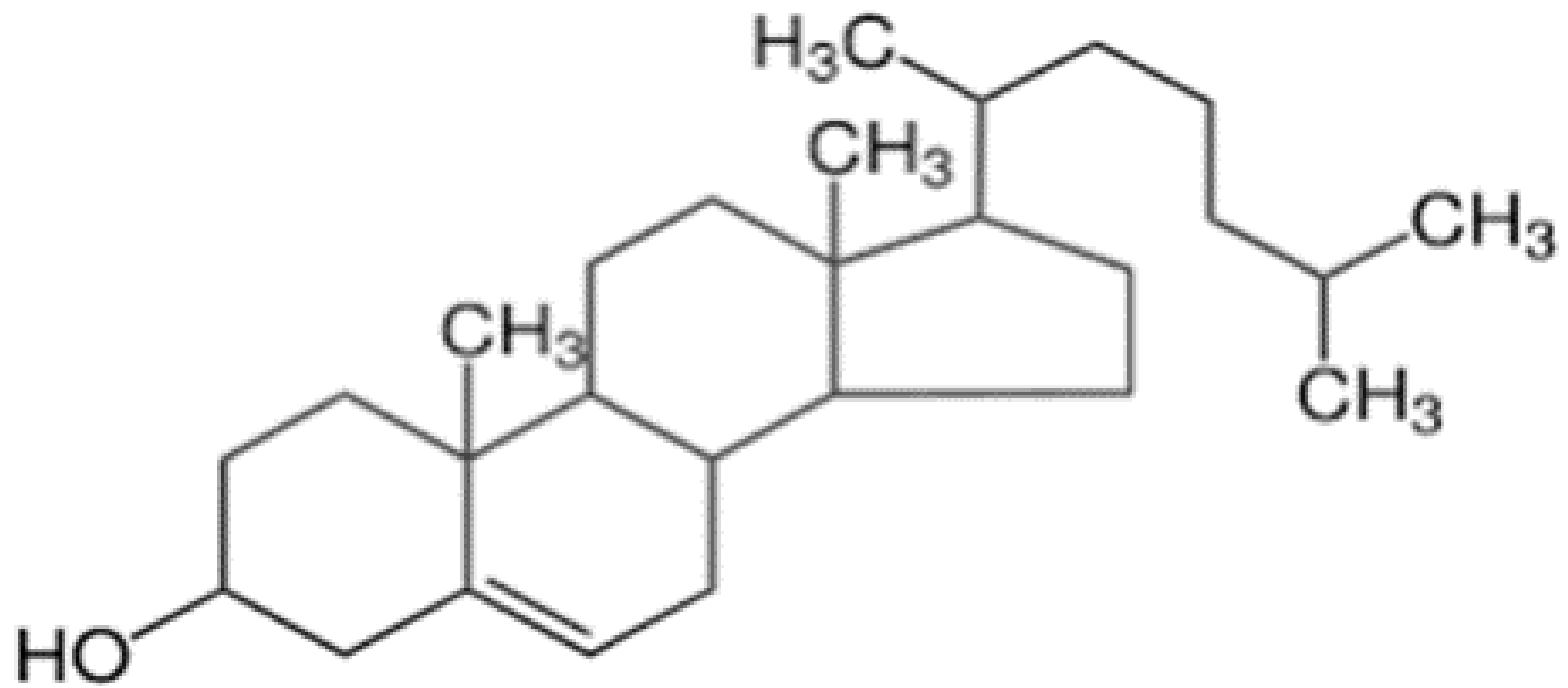
Sources of cholesterol:

1-dietary sources.

2-about 20-25% of daily cholesterol synthesized in liver.

3-Other sites of cholesterol production include adrenal gland ,intestine and reproductive organ.





## Cholesterol metabolism:

Cholesterol produced by the liver is converted to bile which then stored in gallbladder.

Bile contains bile salts that can solubilize fats in the digestive tract and help in the intestinal absorption of fat molecules and vitamins that are soluble in fat(E,D,A,K).



## Dislipidemia:

Hypercholesterolemia : means higher levels of LDL in blood and low levels of HDL , this condition is strongly associated with cardiovascular disease (like atherosclerosis).

