

MODULE 5: Structure and Functions of Lipids

Q.1. Plasmalogen is another name for -----?

Ans: Phospholipids.

Q.2. Predominant carbohydrate present in glycolipids is -----?

Ans: Galactose.

Q.3. Give full form of VLDL, IDL, LDL, HDL?

Ans:

VLDL: very low density lipoprotein.

IDL: Intermediate density lipoprotein.

LDL: low density lipoprotein.

HDL: high density lipoprotein.

Q.4. Identify and name the fatty acid from the following representation:

(a) 6:0

(b) 16:0

(c) 20:0

(d) 18:1 Δ^9

(e) 18:3 $\Delta^{9,12,15}$

Ans:

(a) 6:0- caproic acid

(b) 16:0-palmitic acid

(c) 20:0- arachidic acid

(d) 18:1 Δ^9 -Oleic acid

(e) 18:3 $\Delta^{9,12,15}$ -Linolenic acid

Q.5. Give chemical formula and representation for following fatty acids?

(a) Lauric acid

(b) Myristic acid

(c) Linoleic acid

(d) Arachidonic acid

Ans:

(a) Lauric acid: $\text{CH}_3(\text{CH}_2)_{10}\text{COOH}$, 12:0

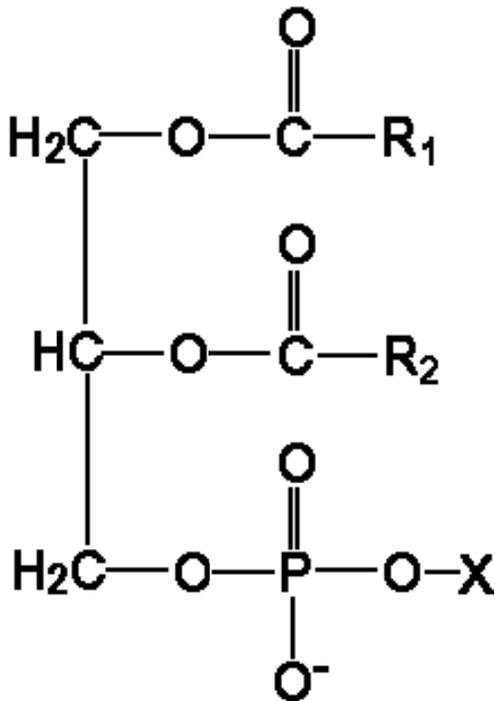
(b) Myristic acid: $\text{CH}_3(\text{CH}_2)_{12}\text{COOH}$, 14:0

(c) Linoleic acid: $\text{CH}_3(\text{CH}_2)_4\text{C}=\text{CCH}_2\text{C}=\text{C}(\text{CH}_2)_7\text{COOH}$, 18:2 $\Delta^{9,12}$

(d) Arachidonic acid: $\text{CH}_3(\text{CH}_2)_3(\text{CH}_2\text{C}=\text{C})_4(\text{CH}_2)_3\text{COOH}$, 20:4 $\Delta^{5,8,11,14}$

Q.6. Draw the basic structural skeleton of phospholipids?

Ans:



Q.7. What are sphingolipids? Distinguish between cerebroside and ganglioside?

Ans:

Sphingolipids are composed of a backbone of sphingosine, which is derived from glycerol.

- Glycosphingolipids other major class of sphingolipids are generated by substitution of carbohydrates at CH₂OH. Cerebrosides and Gangliosides are major classes of glycosphingolipids.
- Cerebrosides: also called galactocerebrosides because galactose is the carbohydrate present in it.
- Gangliosides: it also contains sialic acid.

Q.8. Discuss general structure of a “lipoprotein”?

Ans: The lipoprotein particle is composed of an outer shell of phospholipid, which makes it water soluble; a core of fats and a surface apoprotein molecule that allows recognition by the tissues and uptake of the particle.

