

02/04/2020

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DEPARTMENT: Medical Laboratory Science

LEVEL: 200

COURSE: BCh 202

1. What are plasmalogens?

ANSWER

Plasmalogens are a unique class of membrane glycerophospholipids containing a fatty alcohol with a vinyl-ether bond at the sn-1 position and enriched in polyunsaturated fatty acids at sn-2 position of the glycerol backbone. Although plasmalogens represent up to 20% of the total phospholipid mass in humans they physiological roles have been challenging to identify and are likely to be particular to different tissues, metabolic processes and developmental stages.

2. Name and draw 3 examples of plasmalogens

ANSWER

The two types of plasmalogen based on ether bond or position are:

i) plasmalogen 1 phospholipids

ii) plasmalogen 1 - phospholipids -

Plasmalogen 1 - phospholipids have an ether bond in position sn-1 to an alkyl group. Plasmalogen 1 - phospholipids have an ether bond in position sn-1 to an alkenyl group. The most common head groups present in mammalian plasmalogens are ethanolamine or choline.

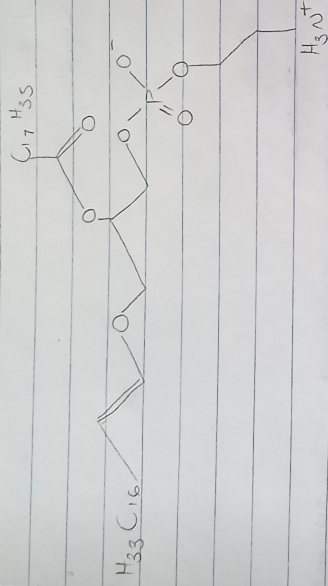


DIAGRAM OF ETHANOLAMINE PLASMALOGEN

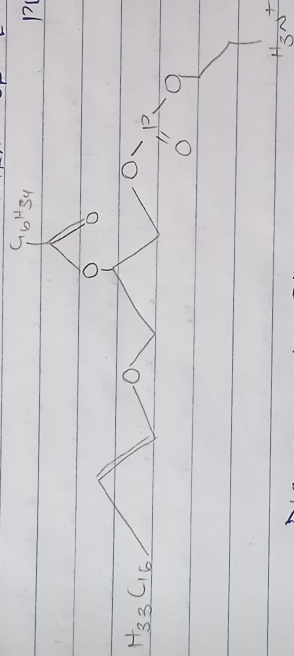


DIAGRAM OF PLASMA MEMBRANOLIPIDS

3. Give two differences between Plasmalogens and phosphoglycerides.

Plasmalogens	Phosphoglycerides
They are required for the proper function of integral membrane proteins and for the generation of lipid second messengers.	They are reservoir for intracellular messengers.
They can protect mammalian cells against the damaging effects of reactive oxygen species.	They serve as a structural component of biological membranes.