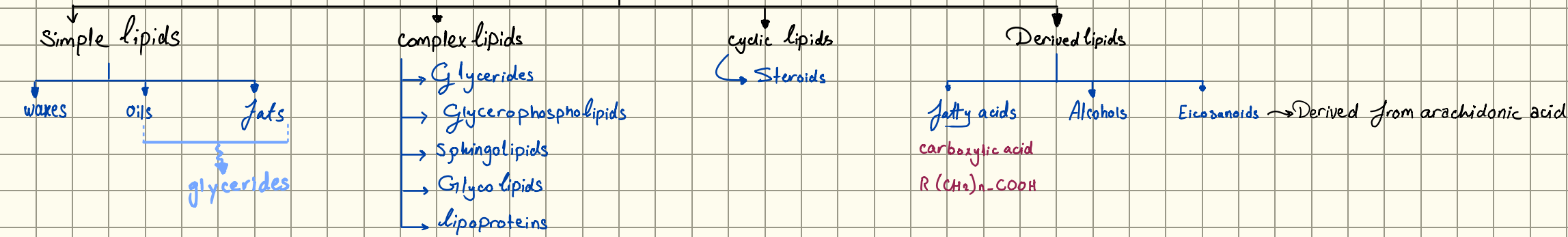
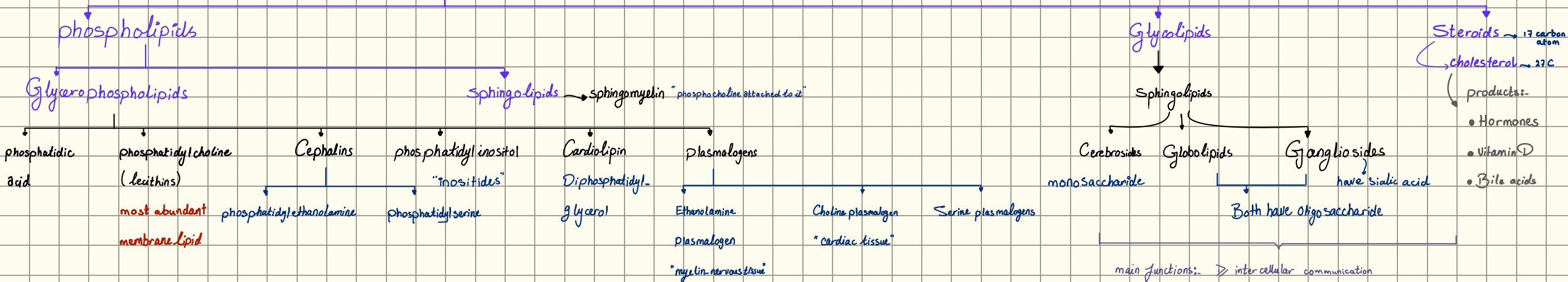


Lipids

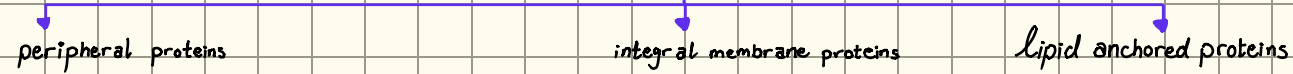
والصبر الجليل
قائلاً بالحق



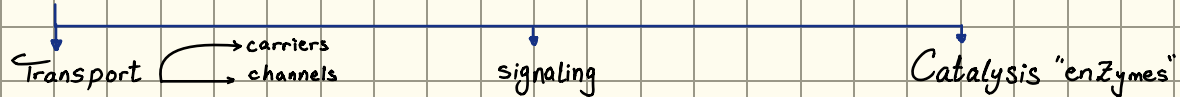
Membrane phospholipids



Membrane proteins



* Functions of membrane proteins



- main functions:-
- intercellular communication
 - Antigenic determinants of ABO blood groups
 - Receptors by viruses & bacterial toxins

• Important notes:-

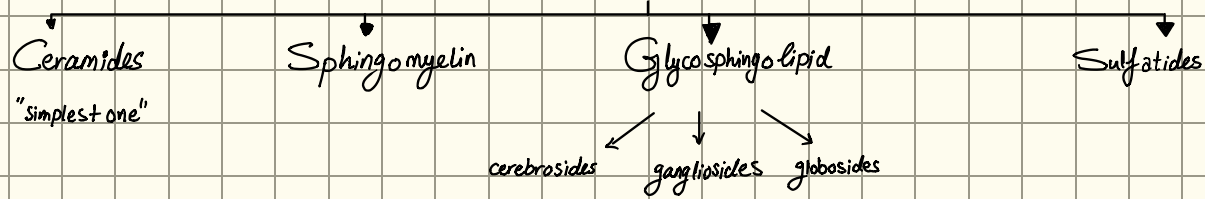
* **lecithin** $\xrightarrow[\text{enzyme}]{\text{lecithinase}}$ **lysolecithin**

* emulsifying agents :- phospholipids & Bile salts $\rightarrow$ intestinal absorption of fat

* **plasma logens** $\rightarrow$ have a protective role against **ROS**

* **liposomes** $\xleftrightarrow{\text{delivery function}}$ **micelle**
 2 layers of phospholipids $\rightarrow$ One layer of phospholipids

* **Sulfatides**: Galactocerebrosides "Abundant in brain myelin" $\Rightarrow$ **Glycolipid**
 Sphingolipids



* **fatty acids & membrane fluidity**:-
 - Saturated fatty acids $\rightarrow$ rigid
 - Mixture of saturated & unsaturated fatty acids $\rightarrow$ more fluidic

* **Cholesterol & membrane fluidity**:
 The presence of cholesterol $\xrightarrow{1}$ in cis unsaturated fatty acids prevent hydrophobic chains from packing together, allowing membrane proteins & lipids to move laterally, which makes it a dynamic environment
 $\xrightarrow{2}$ Stabilizing very fluid membranes by interactions between fatty acids of phospholipids with cholesterol ring structure through hydrophobic interactions.

* **lipoproteins** are transporter of different types of lipids in blood plasma

$\uparrow$ proteins $\downarrow$ lipid $\uparrow$ Density
 $\downarrow$ proteins $\uparrow$ lipid $\downarrow$ Density

* **Isoprene**:- The precursor of steroids

$\Rightarrow$ **Cholesterol esters**:-

- $\rightarrow$ a fatty acid is esterified to the hydroxyl group of cholesterol
- $\rightarrow$ A way of storing fatty acids inside cells
- $\rightarrow$ Not amphipathic any more? more hydrophilic than free cholesterol

— **Atherosclerosis**:- accumulation of LDL in blood vessels

- The flexibility of the wall of blood vessels is reduced

* The model of the cell membrane is [The fluid mosaic model]
 45% lipids, 45% proteins & 10% Carbs

x **phospholipids in cell membrane**:-

