



Medical Committee  
The University of Jordan



**SLIDE**



**SHEET**

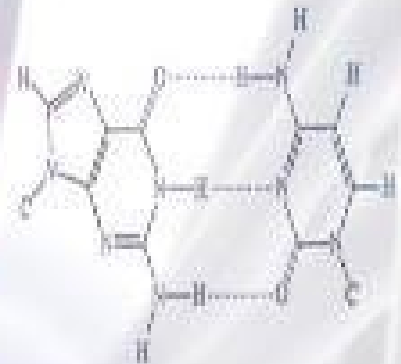


**SLIDE : 20**



**DR.NAME: Dr Faisal**

Biochemistry



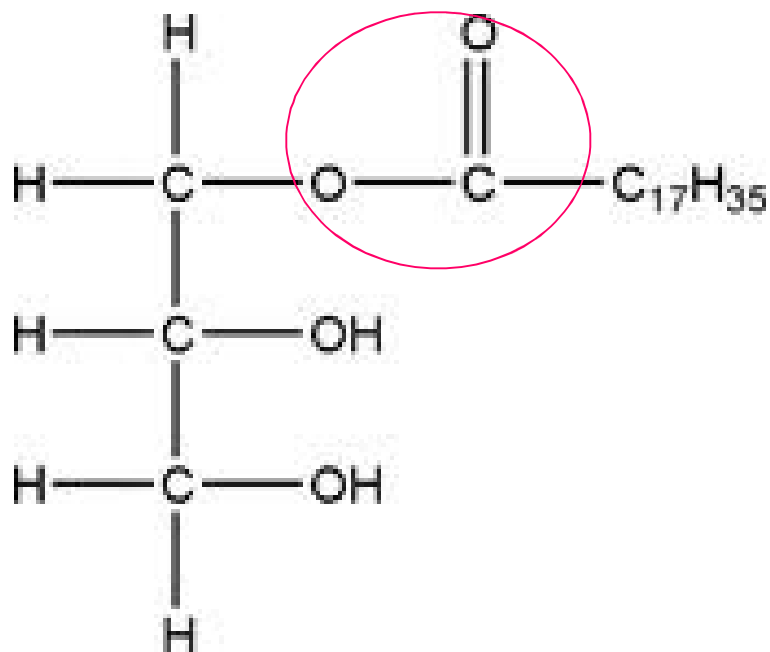
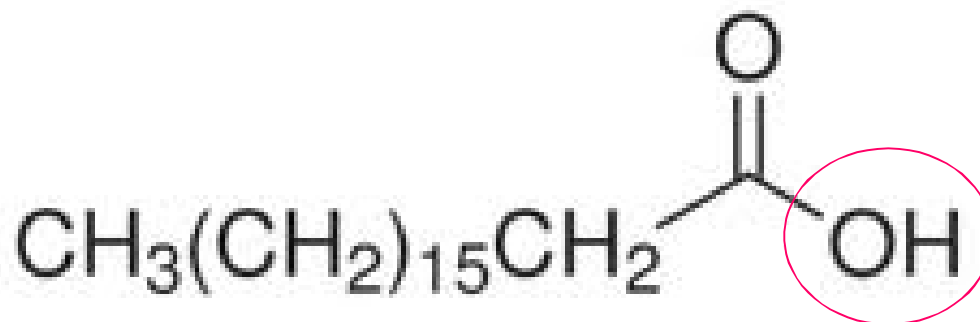
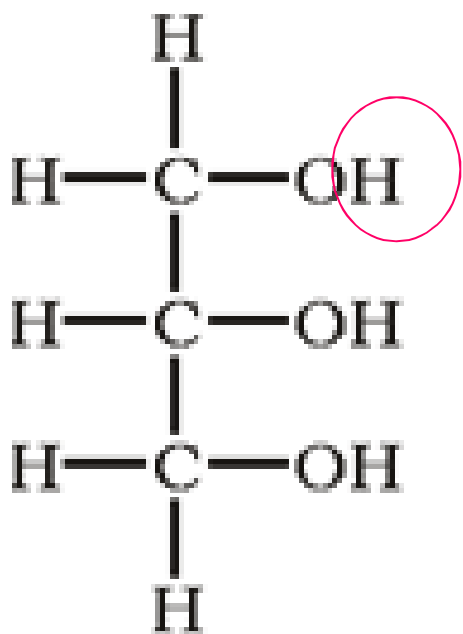
Majida Al-Foqaraa'

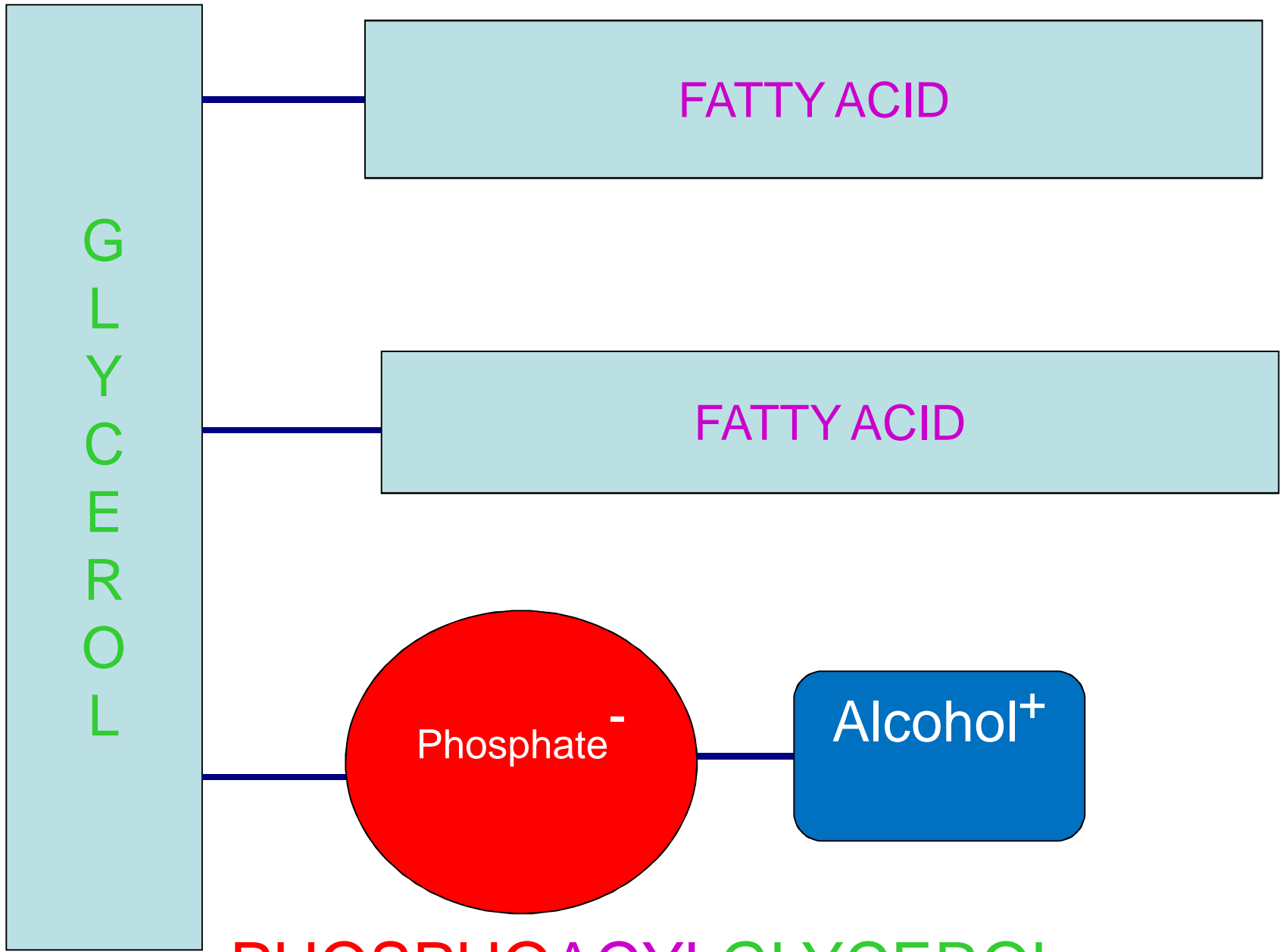
# Digestion and Transport of TAG by Plasma Lipoproteins

Chapter 18

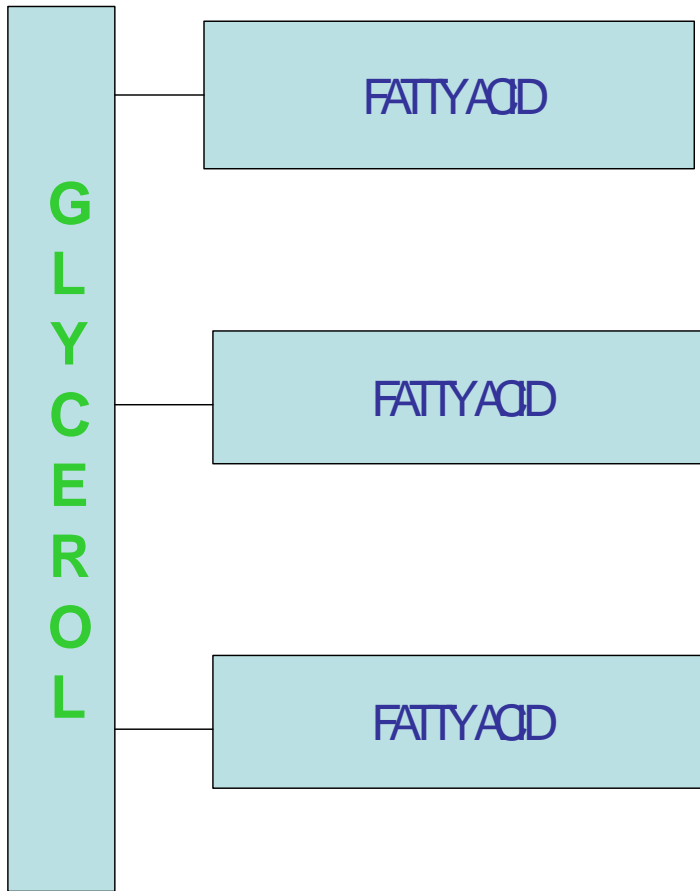
Chapter 15

Lippincott's Illustrated Review  
Biochemistry

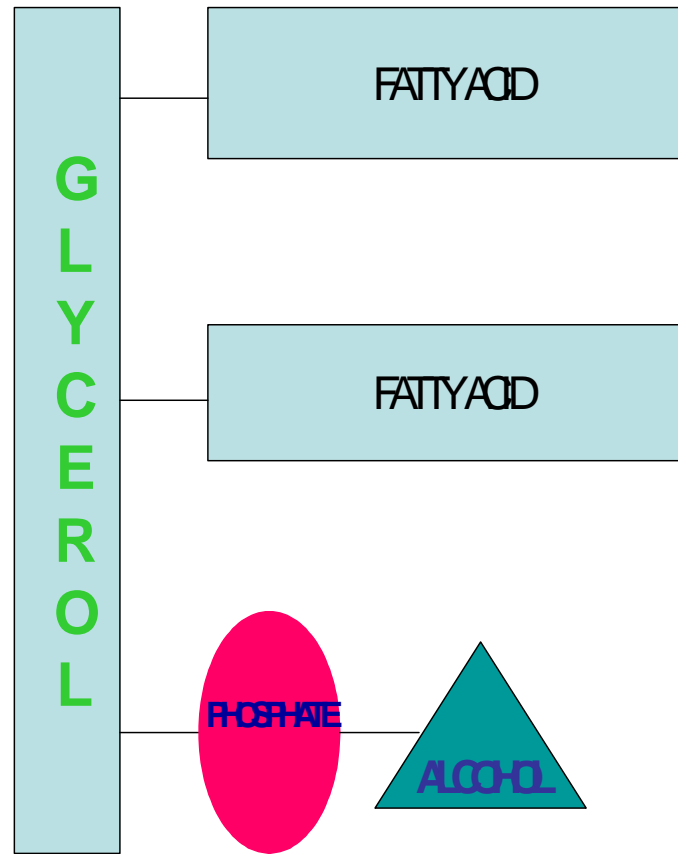




PHOSPHOACYLGLYCEROL



**TRIACYLGLYCEROL**



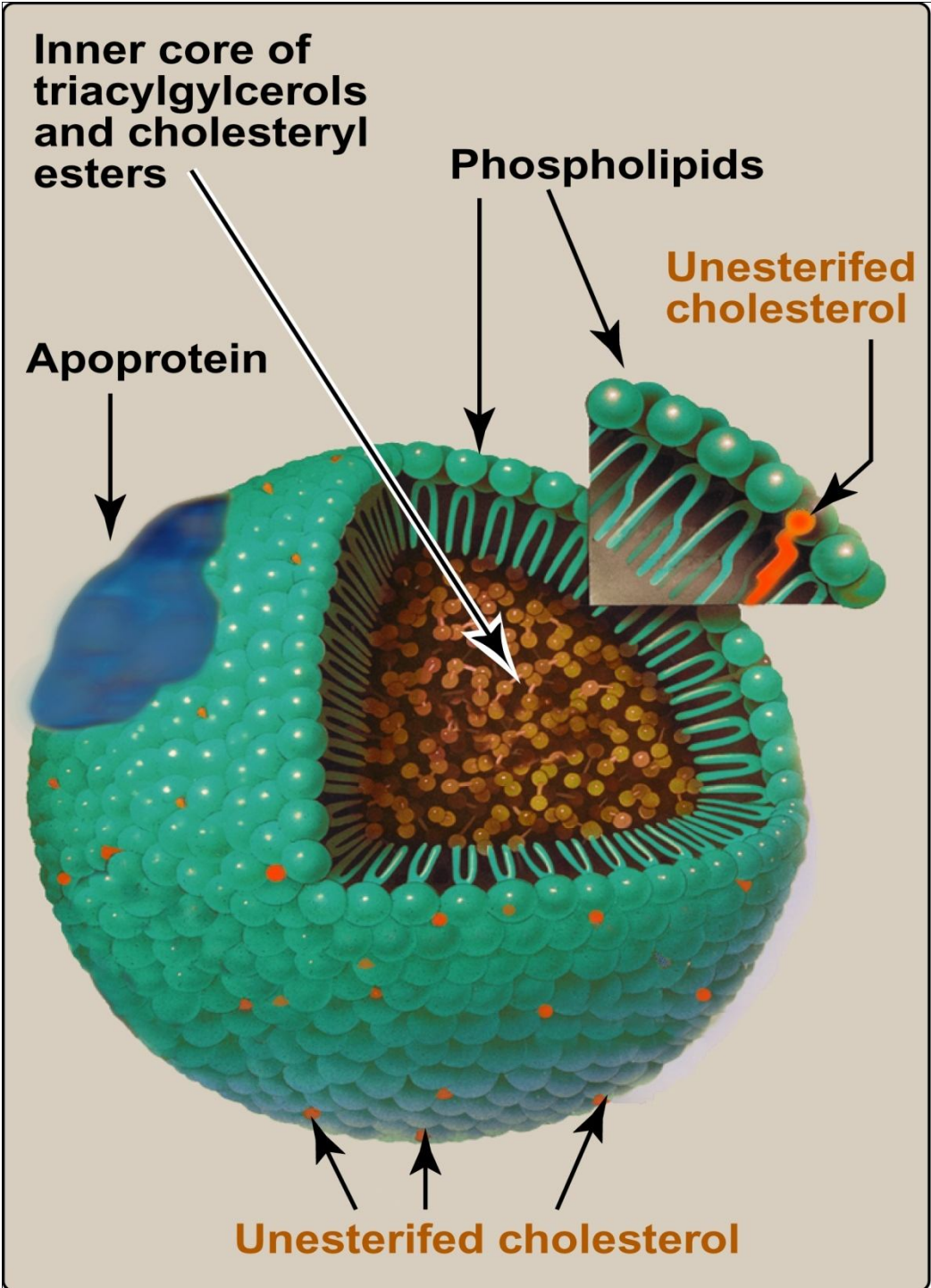
**PHOSPHATIDYLGLYCEROL**

# Lipoproteins

- **Multimolecular Complexes of Lipids and Proteins**
- **For Transport of Lipids in the Plasma**
- **Lipids Include**
  - **TAG** Triacylglycerol
  - **CE** Cholesterol Ester
  - **CH** Cholesterol
  - **PL** Phospholipids

# Apolipoproteins


- The Protein Part of Lipoproteins
- Amphipathic
- Include Several Classes
  - Apo A, Apo B-48, Apo E....
- Structural Role, Regulatory Role and Binding to Cell Surface Receptors





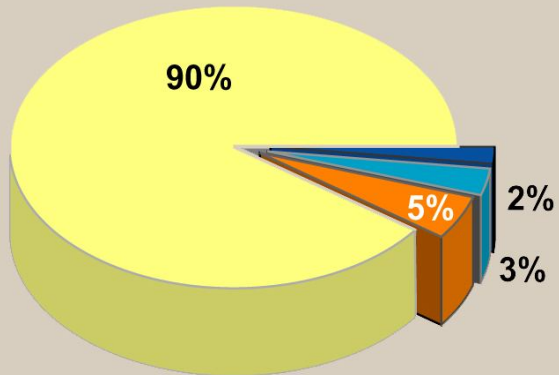
# Classes of Lipoproteins

<u>Lipoprotein</u>	<u>Density</u>	<u>Protein</u>	<u>Major Lipid</u>
Chylomicrons	<0.95	2 %	TAG (85%)
VLDL	0.95- 1.006	9%	TAG (55%)
IDL	1.006-1.019	11%	TAG (26%) CE (30%)
LDL	1.019- 1.063	20%	CE (35%)
HDL	1.063- 1.21	45%	PL (25%)

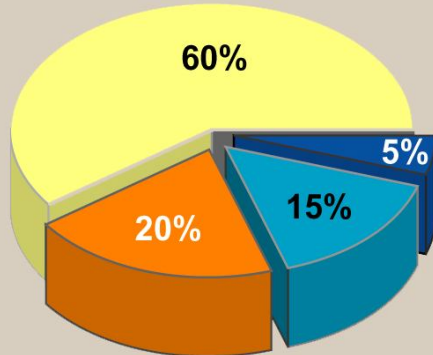


<u>Lipoprotein</u>	Apo Protein Types	
Chylomicrons	Apo B, Apo C, Apo E	Dietary Lipids
VLDL	Apo B, Apo C, Apo E	Endogenous TAG
IDL	Apo B, Apo E	
LDL	<b>Apo B</b>	Cholesterol
HDL	<b>Apo A</b> , Apo C, Apo E	<b>Cholesterol Return to Liver</b>

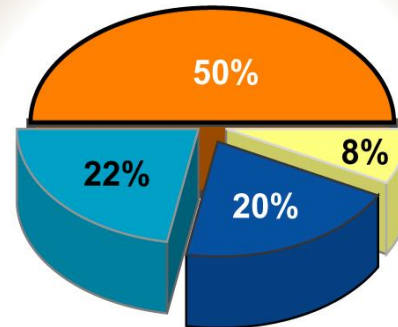
# Composition of Plasma Lipoprotein



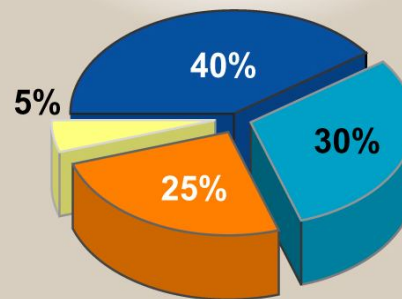
Chylomicron



Very-Low-Density Lipoprotein (VLDL)

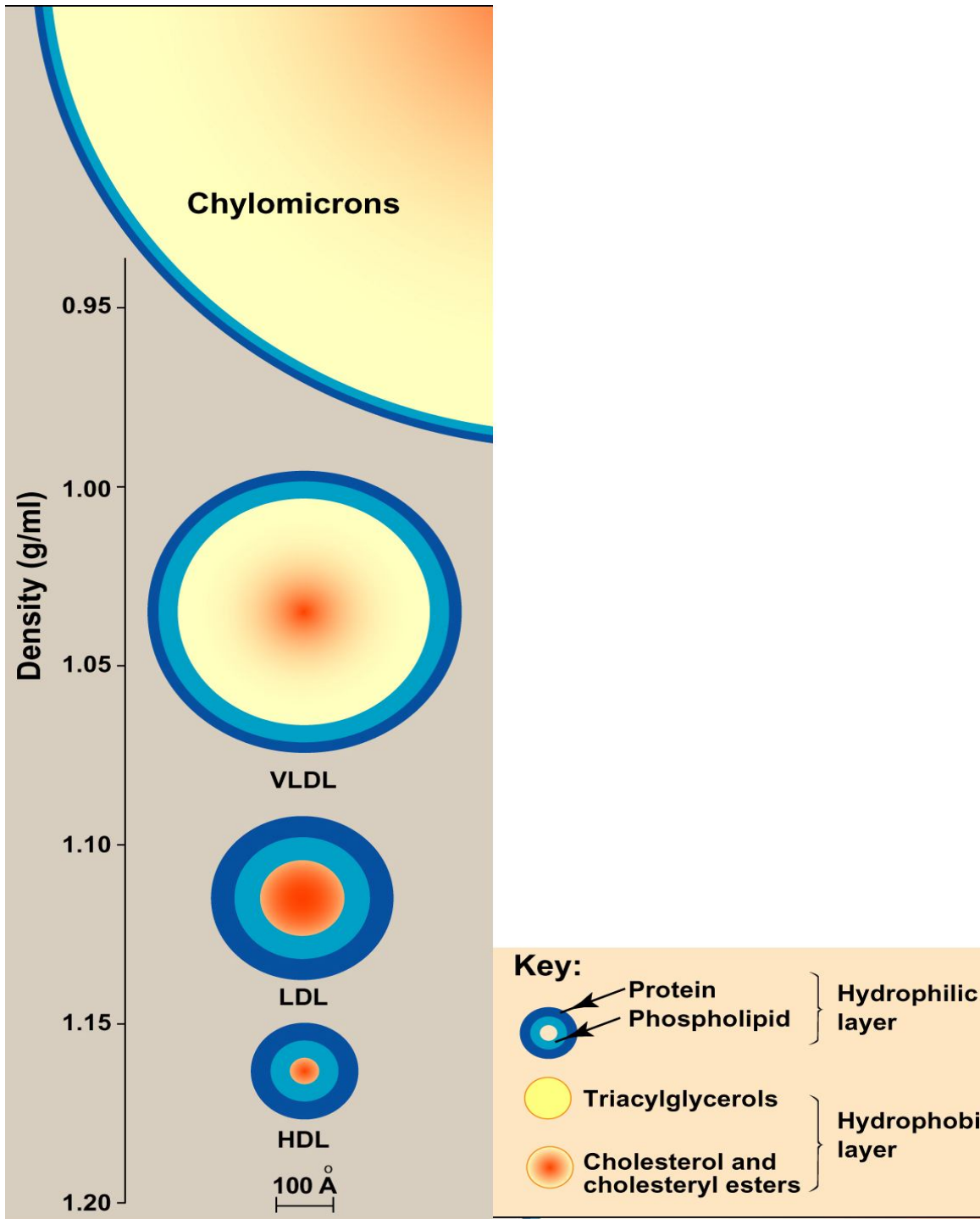


Low-Density Lipoprotein (LDL)

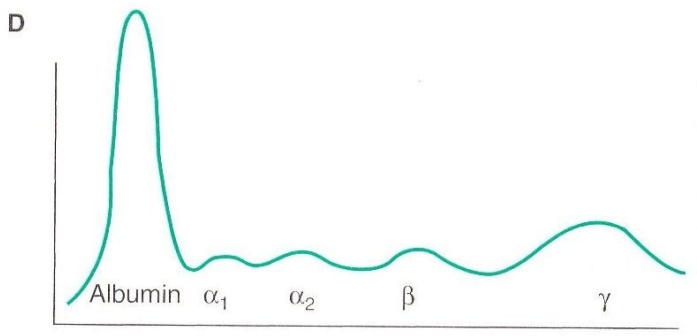
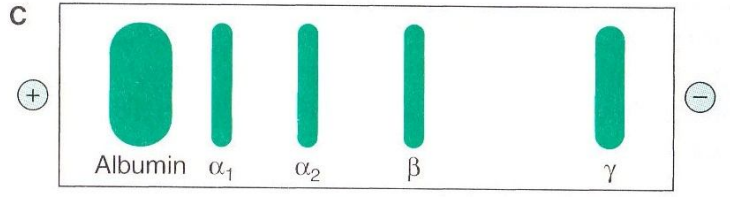
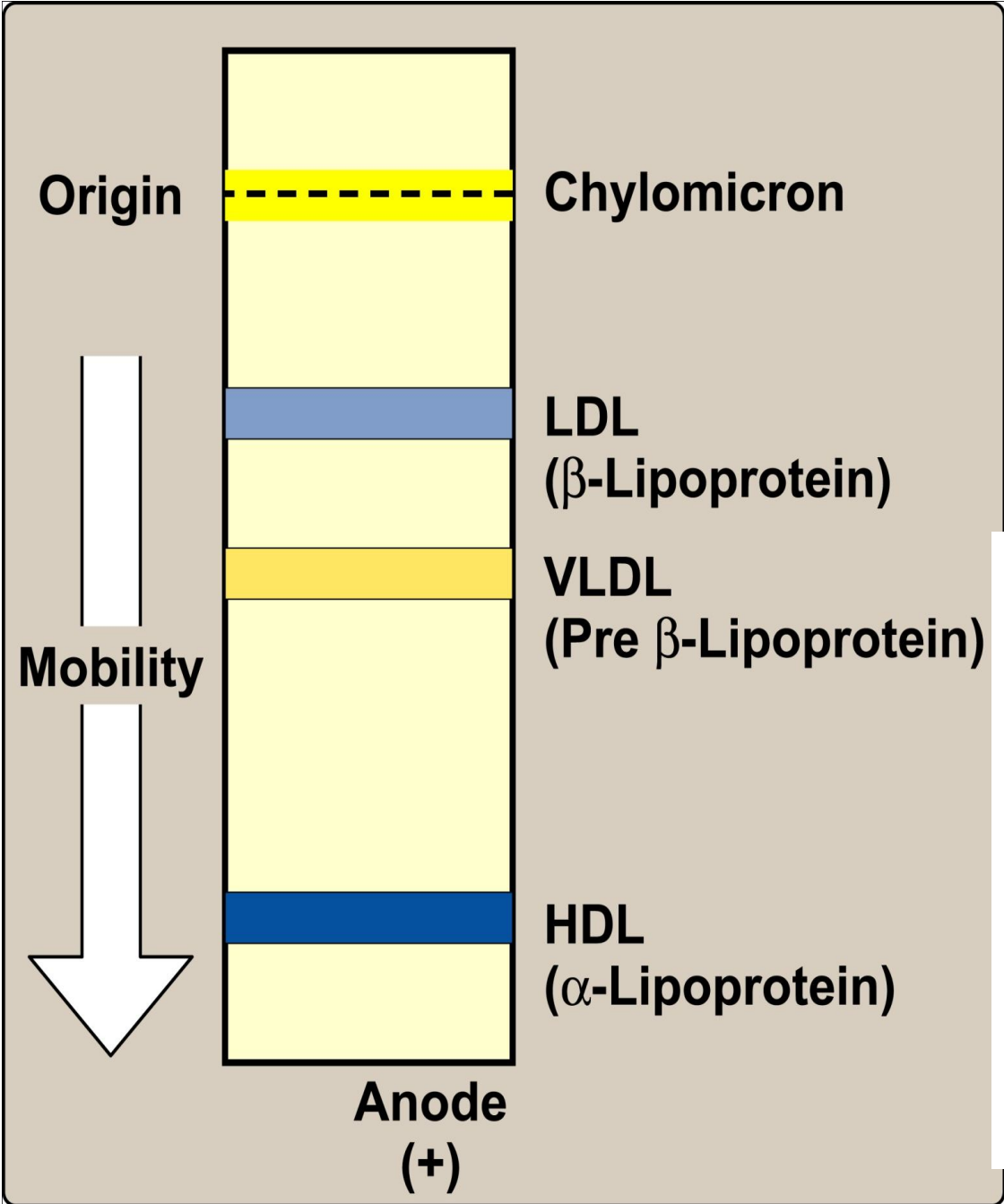


High-Density Lipoprotein (HDL)

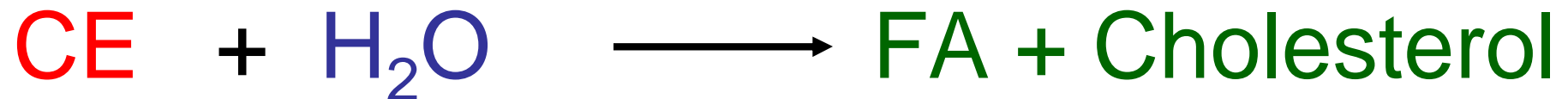
- TRIACYLGLYCEROL
- PROTEIN
- PHOSPHOLIPIDS
- CHOLESTEROL AND CHOLESTERYL ESTERS



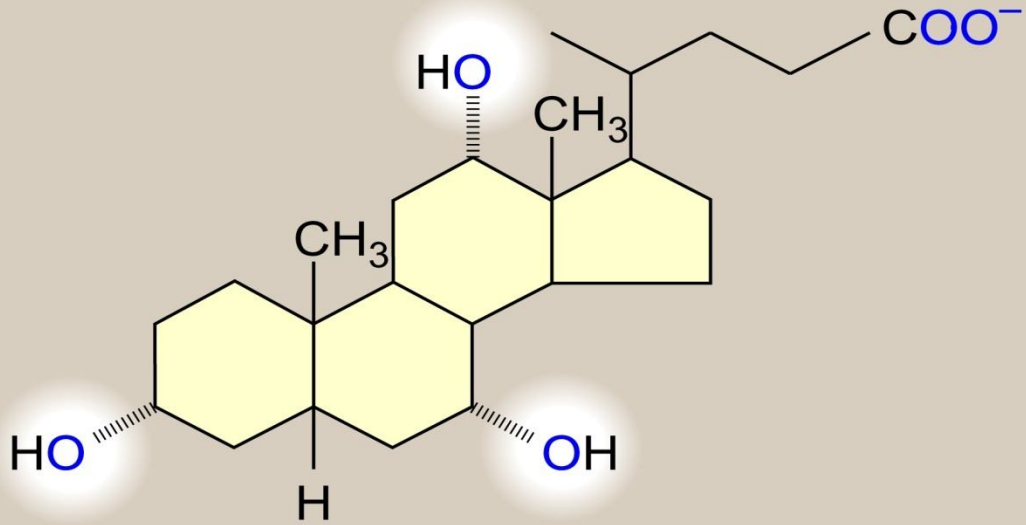
# Lipoproteins can be separated by electrophoresis



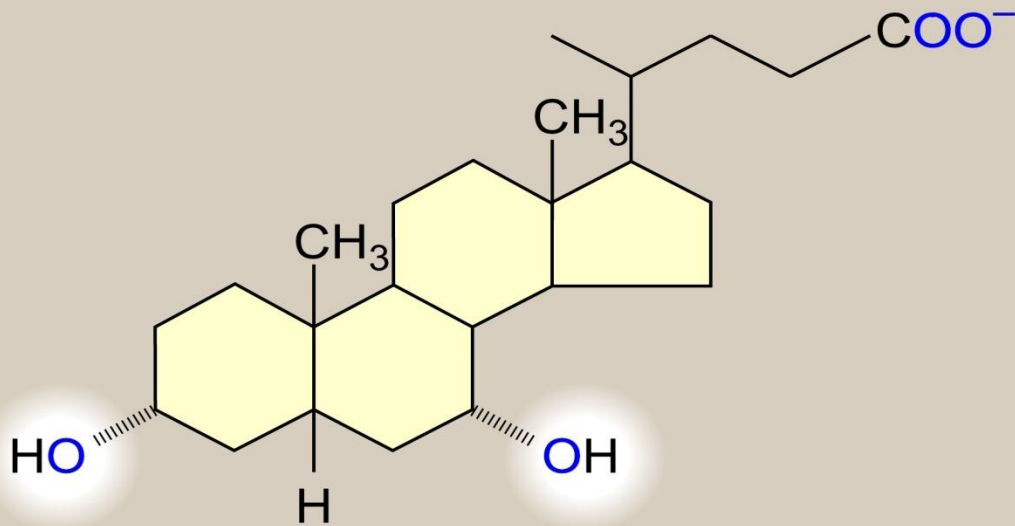
# Digestion of Dietary Lipids



Solubility Problem



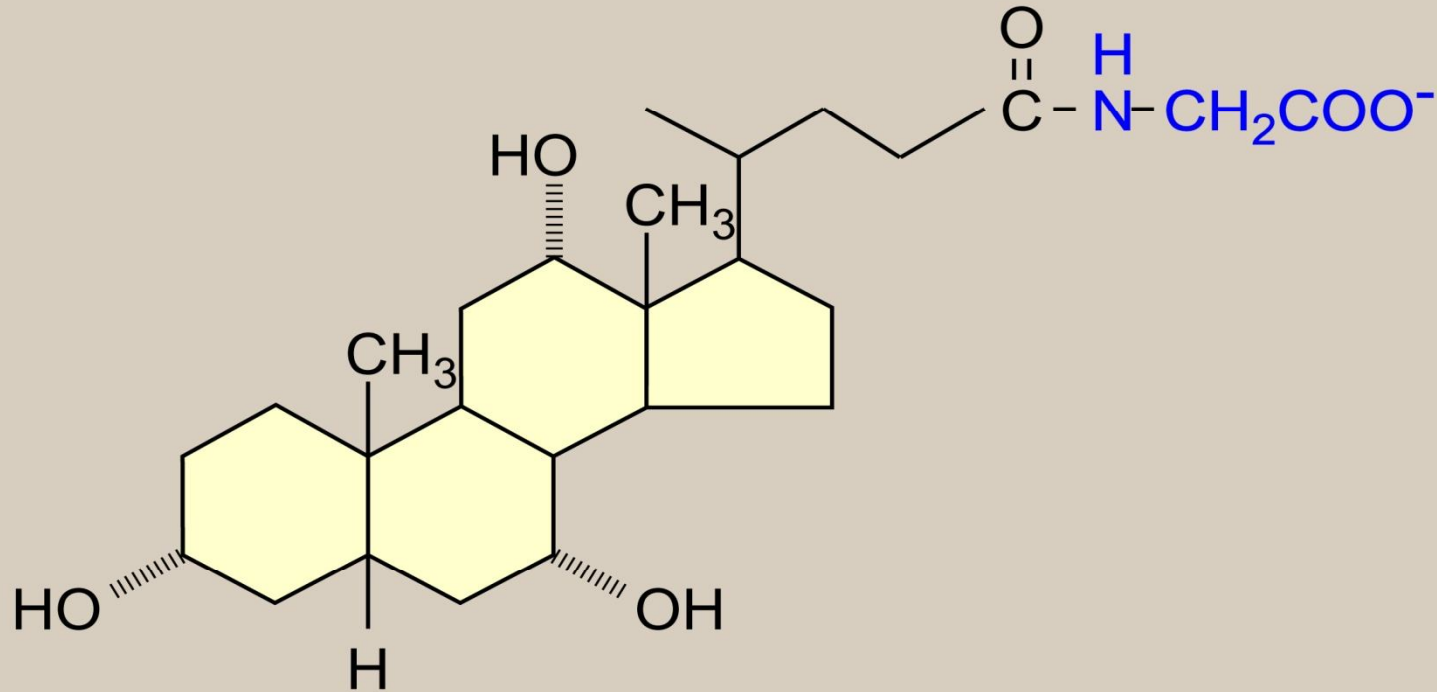
**Cholic acid**



**Chenodeoxycholic acid**

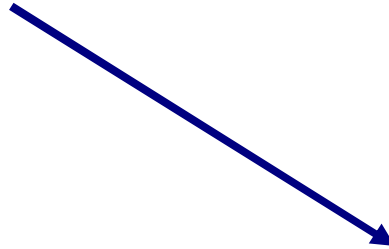
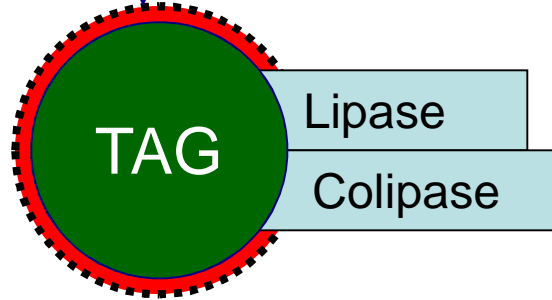
**Cholic acid  
(a bile acid)**

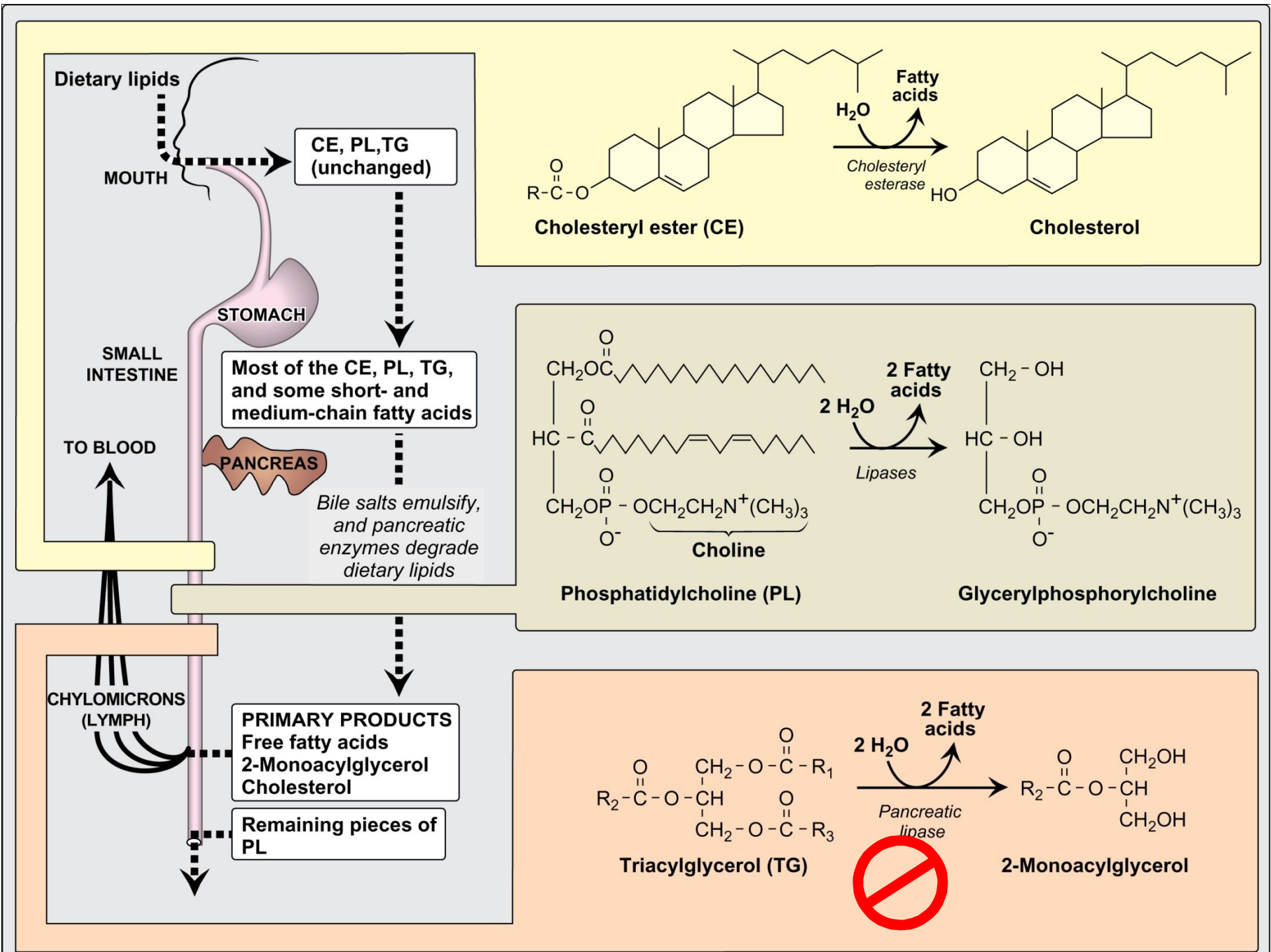
**Glycine**

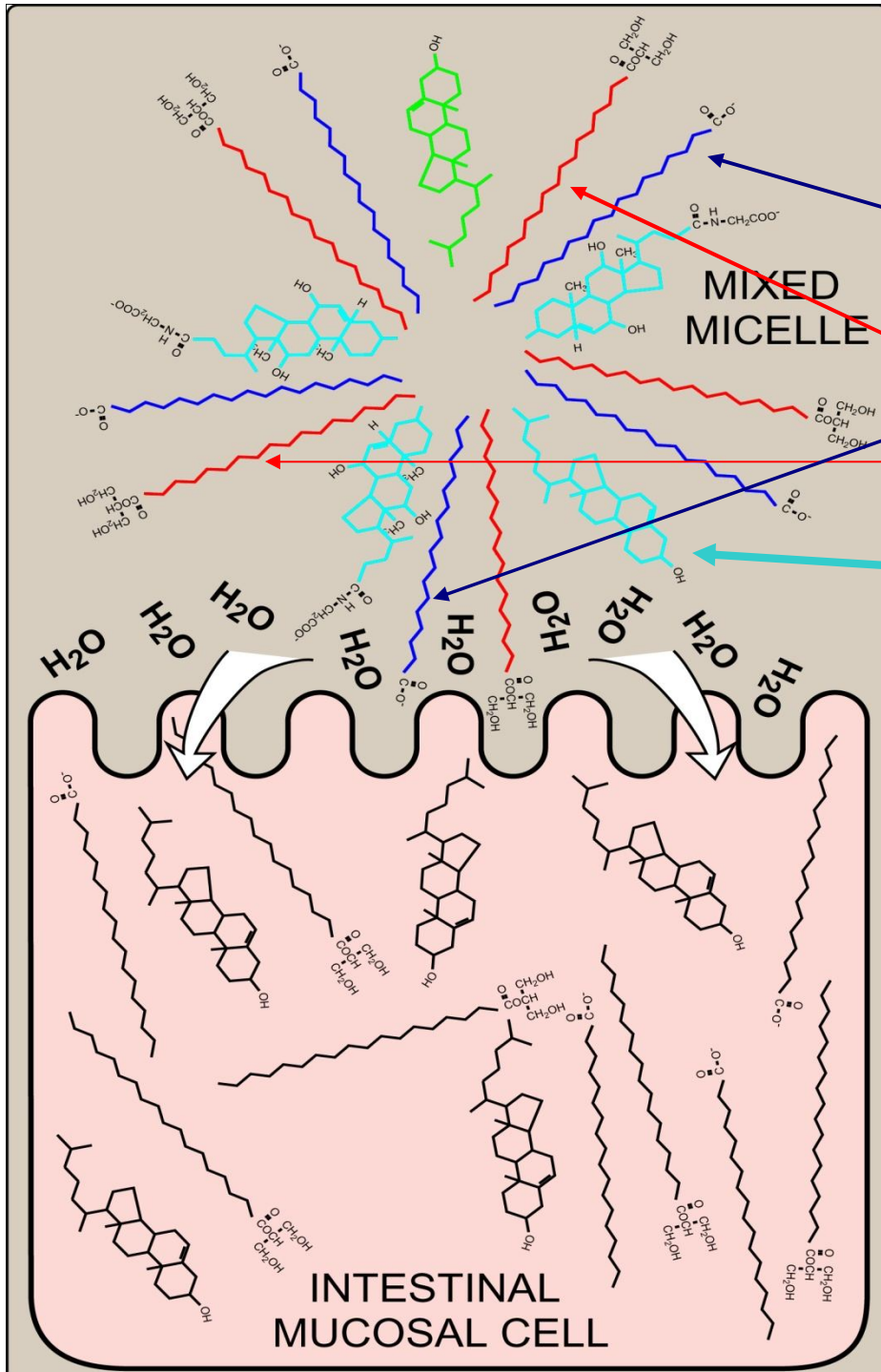


**Glychocholic acid  
(a bile salt)**









**Fatty Acid**

**Monoacylglycerol**

**Cholesterol**

# Digestion of TAG with Short or Medium Chain Fatty Acids

- **Begins in the Stomach**
  - Lingual Lipase
  - Gastric Lipase
- **Acid Stable**
- **Significance**
  - In Neonates
  - In Pancreatic Insufficiency

