HW9: ~~Chapter 10~~ 2, 9, 12, 14

(2) a) Higher # of double bonds = lower melting temperature

b)

Glycerol + 3 Palmitic Acids

2 Palmitic + 1 Oleic Acid

1 Palmitic + 2 Oleic Acid

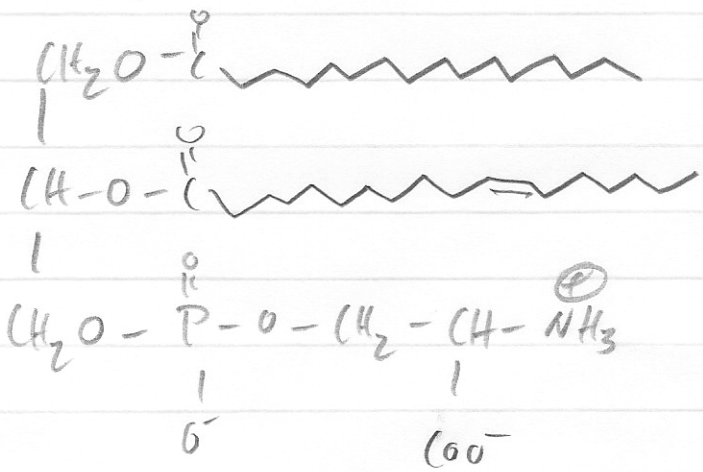
3 Oleic acids

- Higher # of Oleic Acids = ~~Lower~~ Melting Point

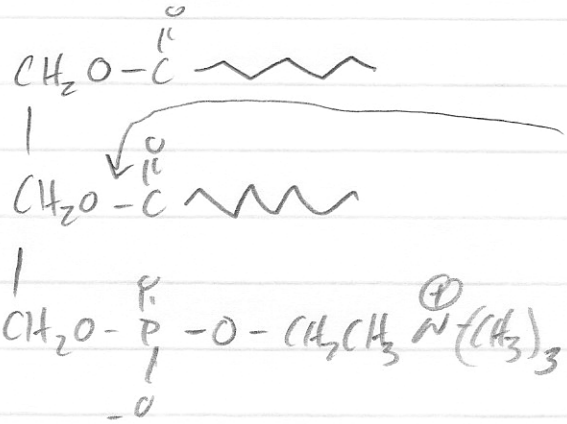
c) Branched chain fatty acids would act like unsaturated bonds and increase the fluidity.

(9) This gives them higher boiling points. They can be heated to higher temperatures to cook the food

(12) Phosphatidyl Serine



(14) a)



After Phospholipase This group is cleaved and C-2 becomes a hydroxyl on the glycerol

b) The C-2 hydroxyl and the Phosphocholine head group are polar on the glycerol. The C-1 fatty acid is hydrophobic

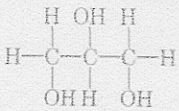
b) The steroids might inhibit phospholipase A2, preventing them from making eicosanoids

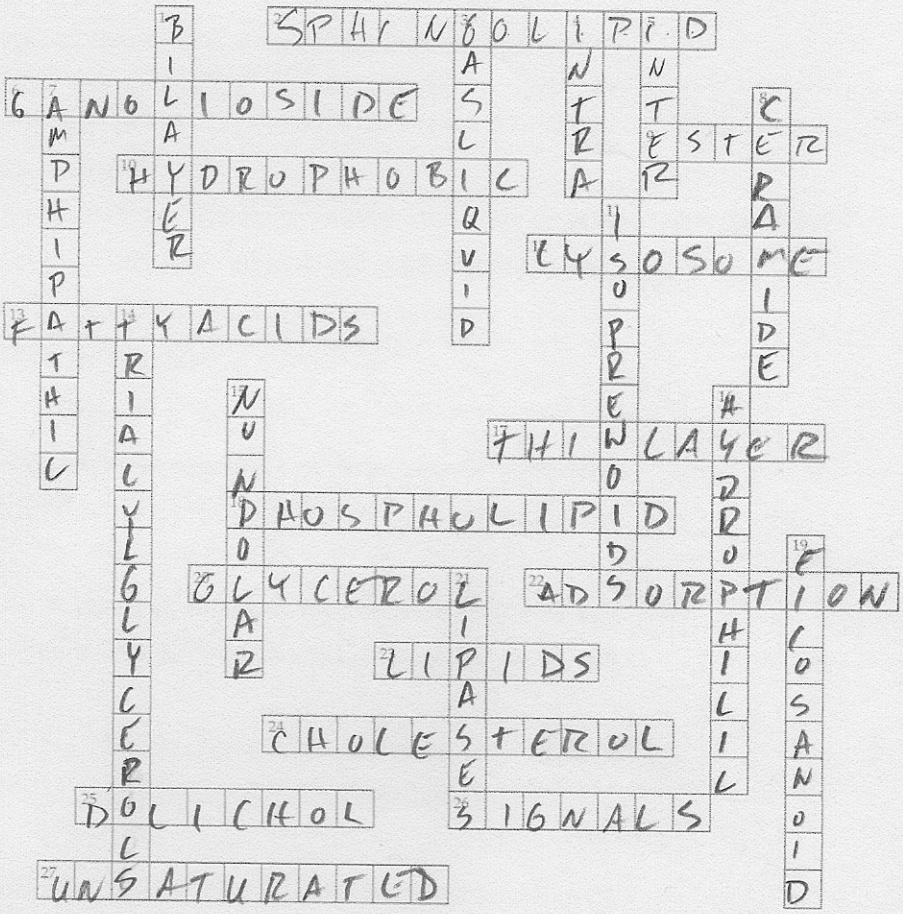
c) Phospholipase A2 is vital in processing lipids and creating eicosanoids.

SELF-TEST

Do You Know the Terms?

ACROSS

2. The possible head group of this class of lipids includes choline and sugars.
6. Sphingolipid with a very complex oligosaccharide head group.
9. Linkage joining the fatty acid tails of most glycerophospholipids to the glycerol backbone.
10. Describes the behavior of the lipid tail of a membrane lipid.
12. Intracellular organelle that compartmentalizes many degradative processes in cells.
13. Long hydrocarbon chains with carboxylic acid groups. (2 words)
17. Type of chromatography that separates lipids from a complex mixture on the basis of capillary action and differences in affinity for an immobile, polar matrix. (2 words)
18. Class of lipid whose hydrophilic moiety contains PO_4^{2-}
20. 
22. Type of chromatography that uses a polar, immobile substrate to selectively remove polar and charged lipids from a complex lipid mixture.
23. Vertebrate heart tissue is uniquely enriched in ether _____ such as plasmalogens.
24. Animal lipid having a rigid sterol nucleus.
25. Extremely hydrophobic isoprenoid compound that anchors sugars to cell membranes.
26. Phosphatidylinositols act as intracellular _____.
27. Describes fatty acids having one or more double bonds.



DOWN

1. The arrangement of lipids in membranes.
3. _____ - _____ chromatography uses differences in the ability to partition between an inert column matrix and an inert gas to separate lipids from a complex mixture. (2 words)
4. Cleavage of phosphatidylinositol bisphosphate by a lipase (phospholipase C) produces two _____ cellular messengers.
5. Steroid hormones are _____ cellular messengers because they carry messages between tissues.
7. Describes phospholipids, sphingolipids, and cholesterol, but not triacylglycerols.
8. Phosphatidic acid is to glycerophospholipids as _____ is to sphingolipids.
11. Ubiquinone and dolichols are both biologically active _____.
14. Lipids stored in adipocytes (fat cells).
15. Compounds in which electrons are shared equally between the atoms are _____ and hydrophobic; they can form few hydrogen bonds with water.
16. Describes the behavior of the head group of a membrane lipid.
19. Prostaglandins belong to this class of paracrine hormones derived from the fatty acid arachidonic acid.
21. Class of enzymes contained in adipocytes that are used for the mobilization of storage lipids.