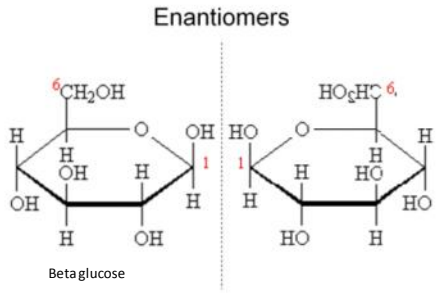
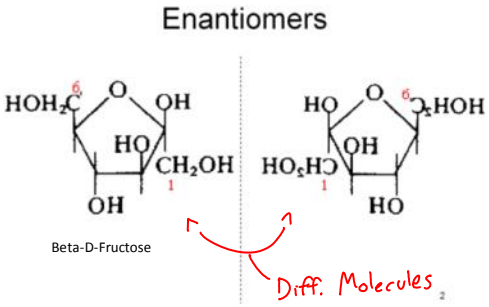
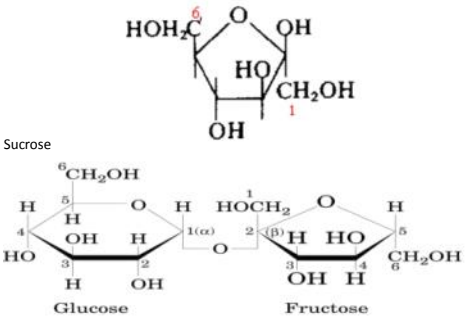
Notes 10/23

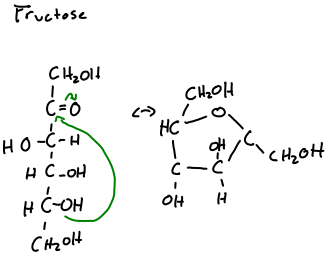
Tuesday, October 23, 2007
10:03 AM

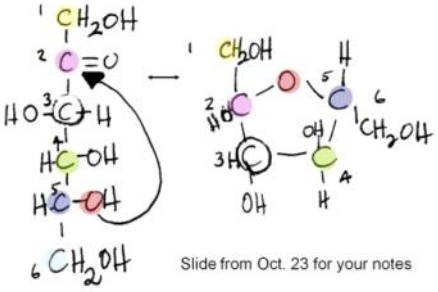


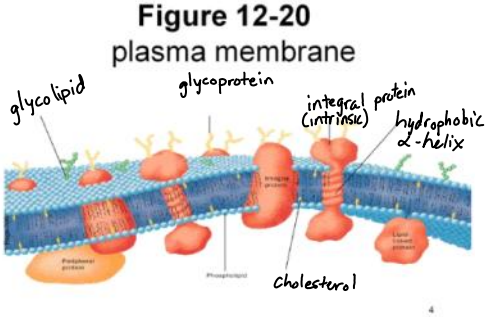
Not epomers
Different Molecules/non-super imposable mirror images







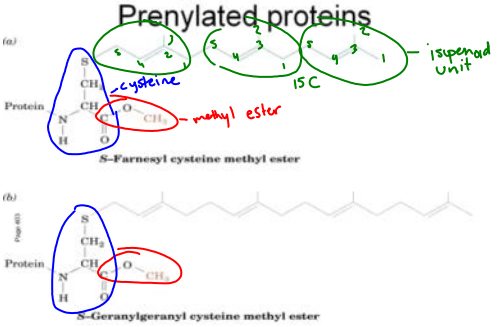




Peripheral proteins - water soluble

Integral protein (called also insintrinsic proteins) is generally water insolubale

Figure 12-29
Prenylated proteins



Function of prenylation:
- Anchors protein to membrane
- Protein protein interactions

Prenylation or **isoprenylation** or **lipidation** is the addition of hydrophobic molecules to a protein.

Pasted from <http://en.wikipedia.org/wiki/Prenylation>

Nishii et al (1997) JBC

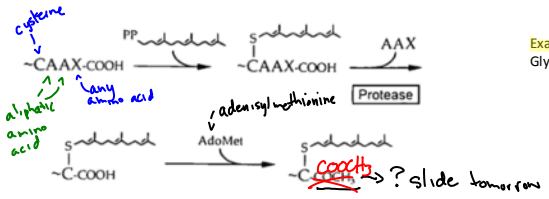


Fig. 1. **Posttranslational modifications of the CAAX motif of Ras.** C, cysteine; A, aliphatic amino acid; X, any amino acid.

Examples of aliphatic amino acids:
Glycine, alanine, valine, leucine, isoleucine (know!)

Corrected slide from 10/24:

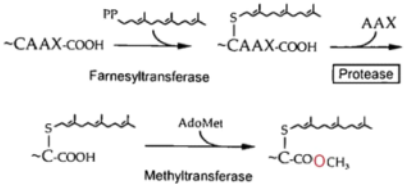
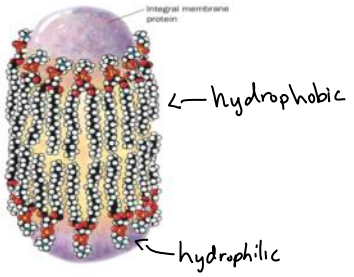


Figure 12-18 integral membrane protein



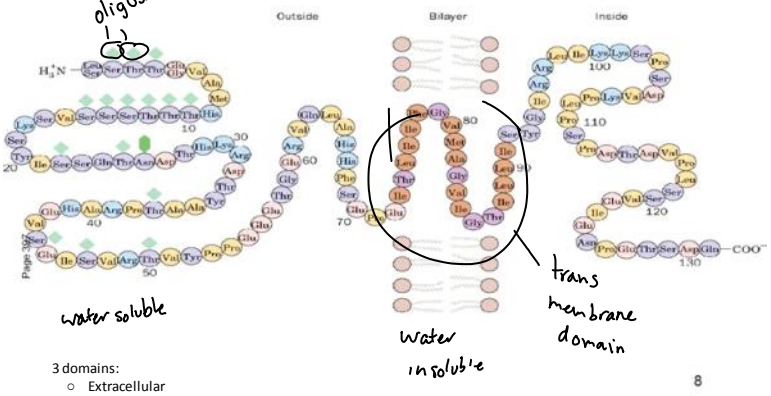
Tend to be water insoluble

Figure 12-21
Integral protein

asymmetric

water soluable

oligosaccarides



3 domains:
- Extracellular
- Transmembrane
- Interior domain

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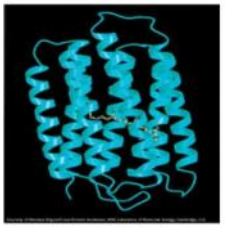
Peripheral proteins can be dissociated using relatively weak denaturants (weaker than detergents)

3 examples of denaturants:
1. High ionic strength salt solution (breaks salt bridge)
2. Metal chelated agents
3. pH changes

Figure 12-25a
bacteriorhodopsin.



← integral protein in bacteria.

Prosthetic group - retinol

Nonprotein group associated w/ protein

*last prosthetic group we covered was heme

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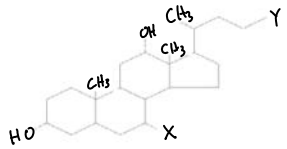
Detergents disrupt inner proteins from membrane.

Figure 12-19 detergents

Lauric acid $CH_3(CH_2)_{10}COOH$

Sodium dodecyl sulfate (SDS) SDS=amphipathic

Detature proteins by altering the balance of weak nonbonding forces.



Not expected to memorize structures but should be able to identify detergent from cholesterol or steroid.
In detergents you have polar hydrophobic tail.

X = H, Y = COO^- Na^+ **Sodium deoxycholate**
X = OH, Y = COO^- Na^+ **Sodium cholate**
X = OH, Y = $CO-NH-(CH_2)_3-N^+(CH_3)_2-SO_3^-$ **CHAPS**

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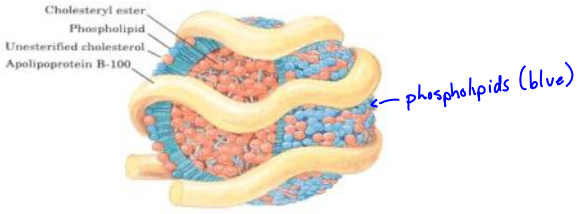
Looks like a miscelle with protein attached to it.

Figure 12-71 LDL

The major cholesterol carrier in bloodstream
Protein non-covalently associated w/ micelle like structure



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Lipoproteins

- Chylomicron
- VLDL
  Very low density lipid protein
- IDL
  Intermediate lipoproteins
- LDL
  Low density lipidproteins
- HDL High density lipidproteins

Chylomicion - Transport dietary triacylglycerols, cholesterol from intestines to tissues. Found in intestinal lymph.

VLDL, IDL, LDL - transport endogenous triacylgricerols and cholesterol from liver to tissues.

HDL - transports endogenous endogenous cholesterol ffrom liver + from tissue to liver.

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Atherosclerosis

- What is it?
  Hardening of the arteries.
  Characterized by arheromas. (greek meaking mush)
- Progressive disease

Starts as intracellular cholesterol deposits in smooth muslce cells of inner arterial wall. Over time deposits will form lesions that later become fibrous, calcified, plaques.

Myocardial infarction - heart attack.

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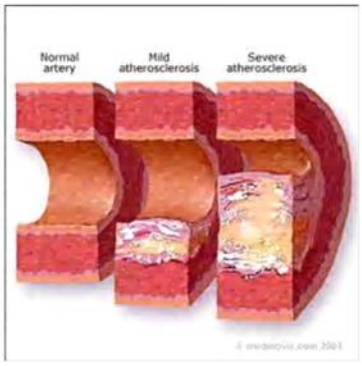

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- Higher HDL -> Good
  - Higher levels by exercise
  - Lose weight
  - Estrogen increases HDL
- Lower HDL
  - Smoking
  - Inactive
  - Genetics
  - Stress, high blood pressure
  - Type II diabetes

Intro to Enzymes

- What is an enzyme?
- Properties
- Classes

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What are Enzymes?

- Proteins (sometimes RNA)
- Catalyze metabolic rxns
- For example:

- Living systems use enzymes to _____ and _____ of vitally important rxns

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More examples

Catalase

Carbonic anhydrase

.

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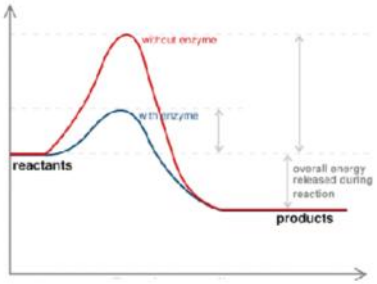

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Properties of enzymes

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