

The Class

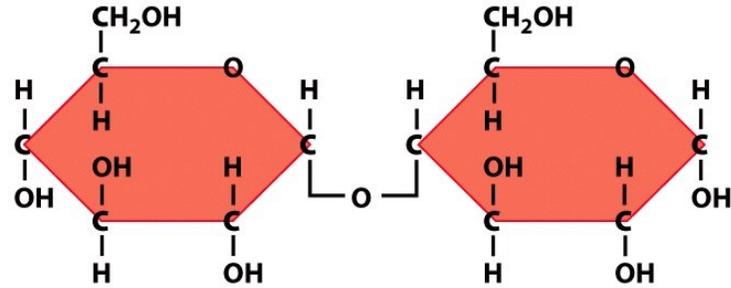
- Basic Introduction to Human Nutrition
- 125 students-sophomores to seniors
- Students have to “memorize” certain facts in order to progress to higher learning
 - Structure of a protein, lipid, carbohydrate
 - Naming lipids
 - Chemical reactions
 - Specific terms
 - Vitamin and mineral names

The Problem

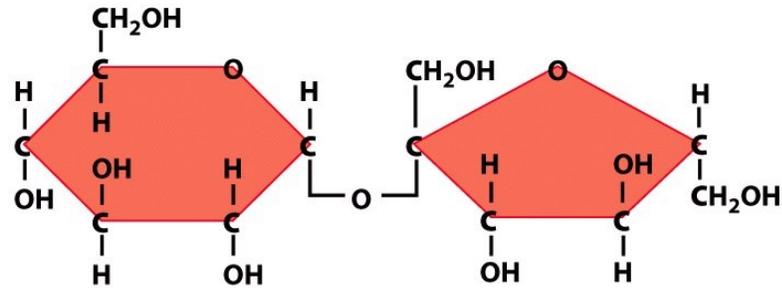
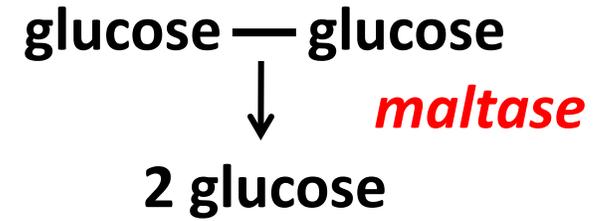
- This is boring to teach and boring for the students to listen to



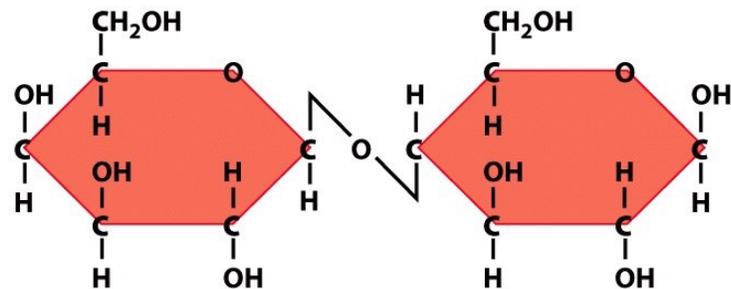
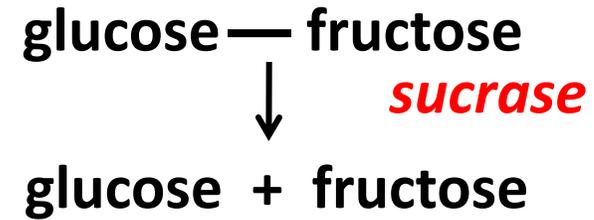
Disaccharides are cleaved by brush border enzymes



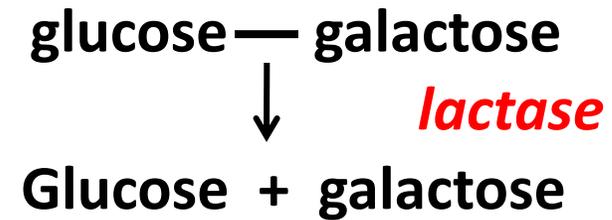
Maltose



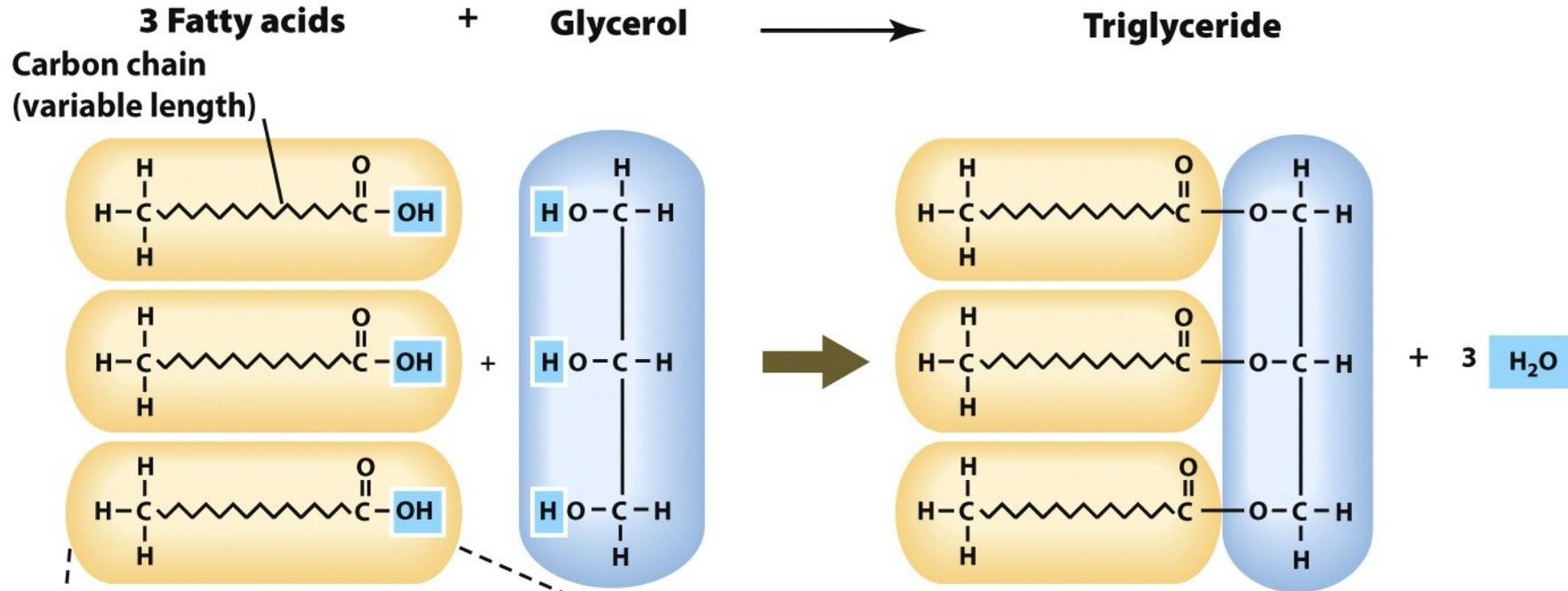
Sucrose



Lactose



Triacylglycerol (triglycerides)



*If only one fatty acid attached:
monoacylglycerol*

*If two fatty acids attached:
diacylglycerol*

How to get them to do this learning on their own?

- This class has a textbook
- I created worksheets so they could follow the book and fill out the worksheet just for items I wanted them to learn on their own
- What was on the worksheet was what would be quizzed on
- So, they fill out the worksheet (ungraded- but they could ask the TA for help- but generally not needed)
- Then take the quiz before LECTURE

Carbohydrates Part I

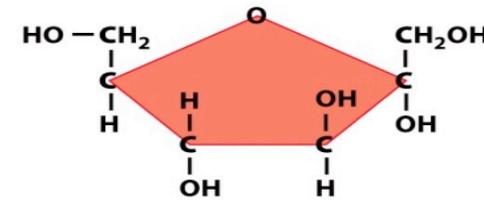
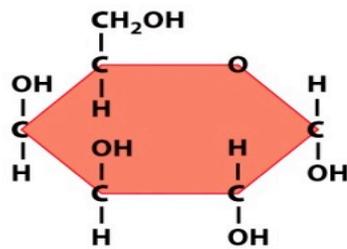
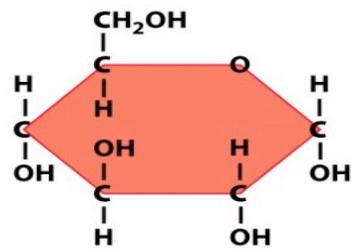
1. Read chapter 4.1-4.3 of your textbook and fill out the pre-class worksheet.
2. Read a brief overview of artificial sweeteners
<https://www.hsph.harvard.edu/nutritionsource/healthy-drinks/artificial-sweeteners/>

1. Which 3 elements are found in all carbohydrates?

2. Complete the chart with the common dietary forms of the following carbohydrates.

Monosaccharides	
Disaccharides	
Complex Carbohydrates	

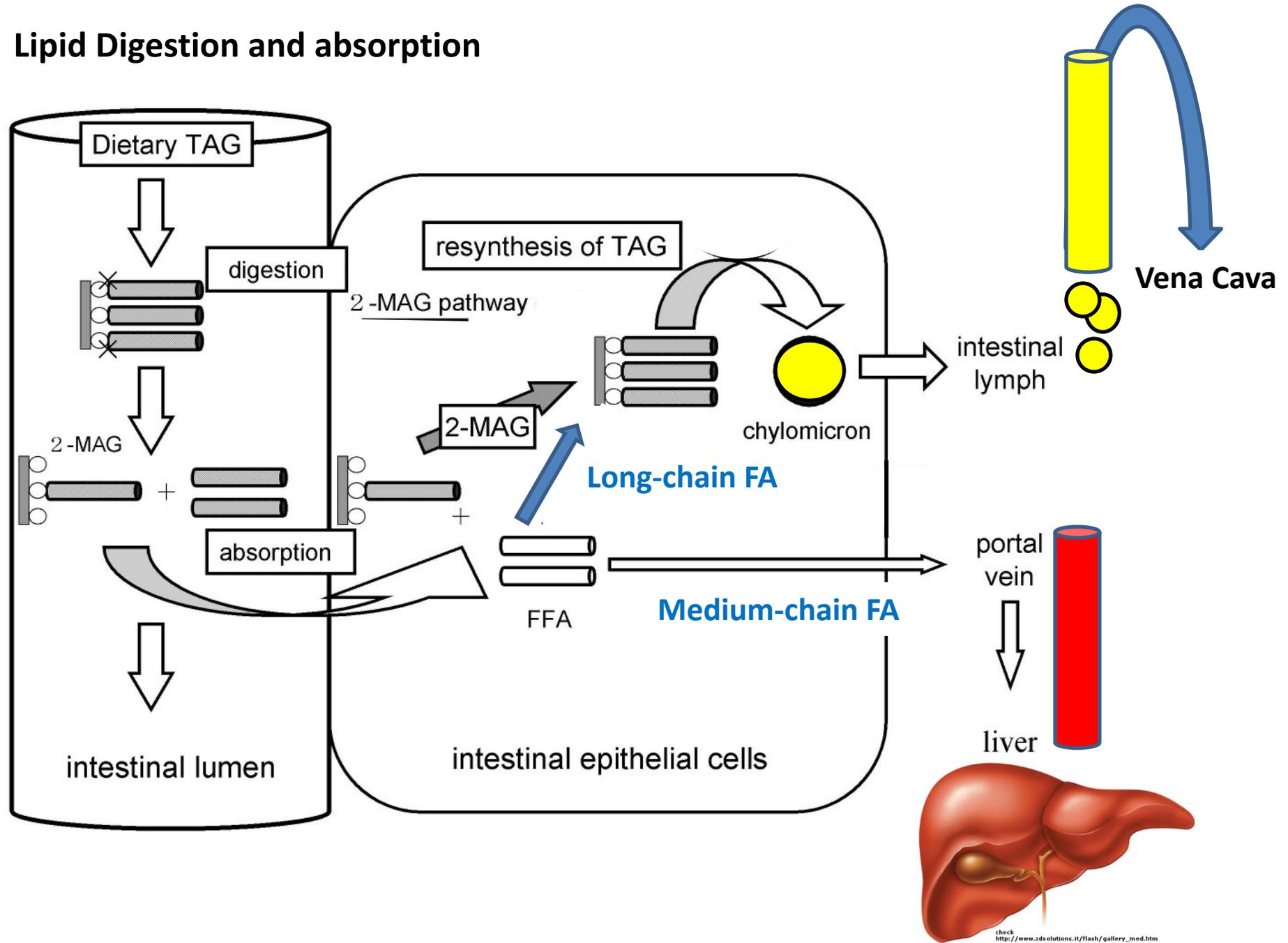
3. Based on the chemical structures provided, what is the chemical formula for monosaccharides? _____

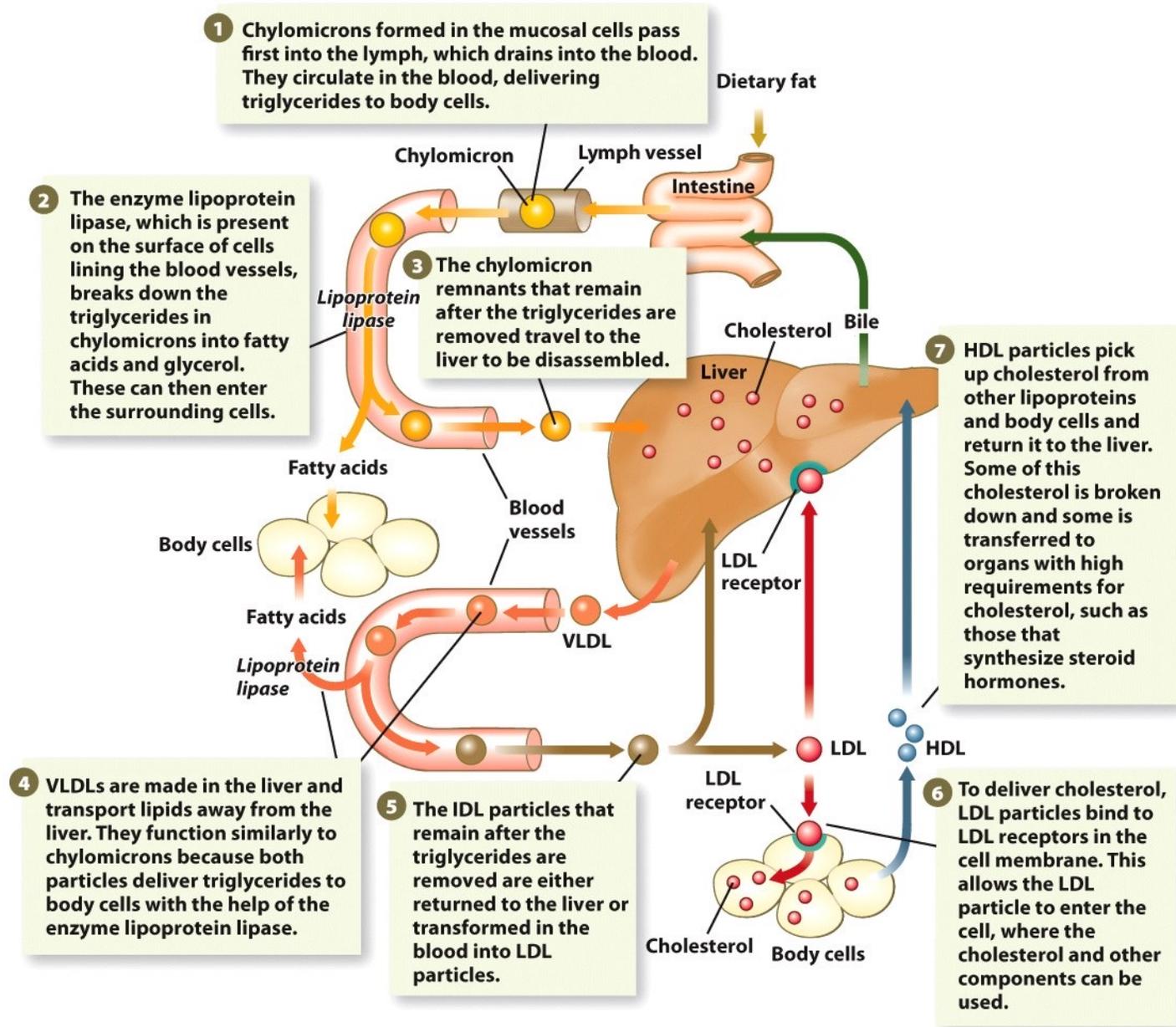


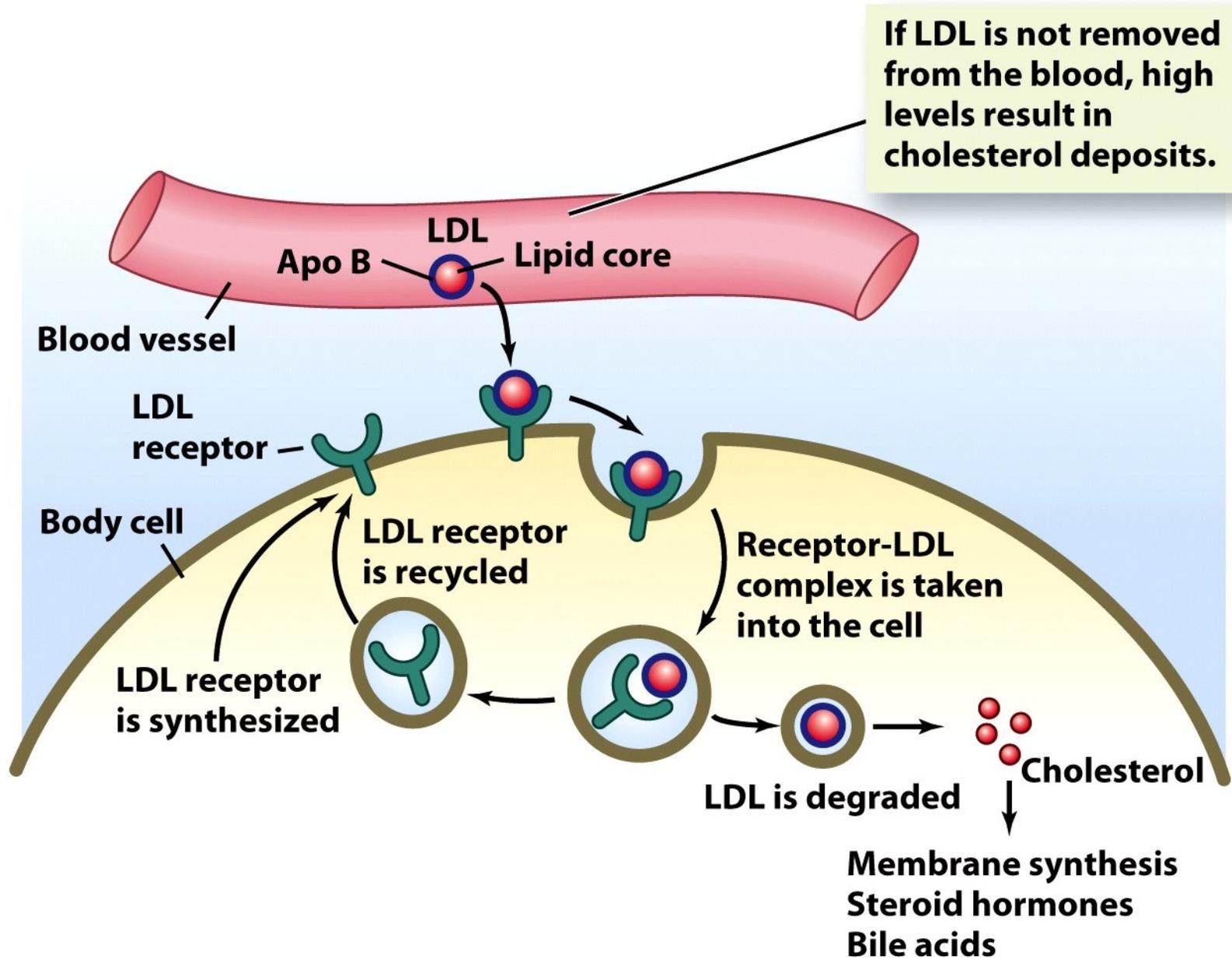
4. Disaccharides are cleaved by _____ enzymes.

We can spend our class time now on this:

Lipid Digestion and absorption

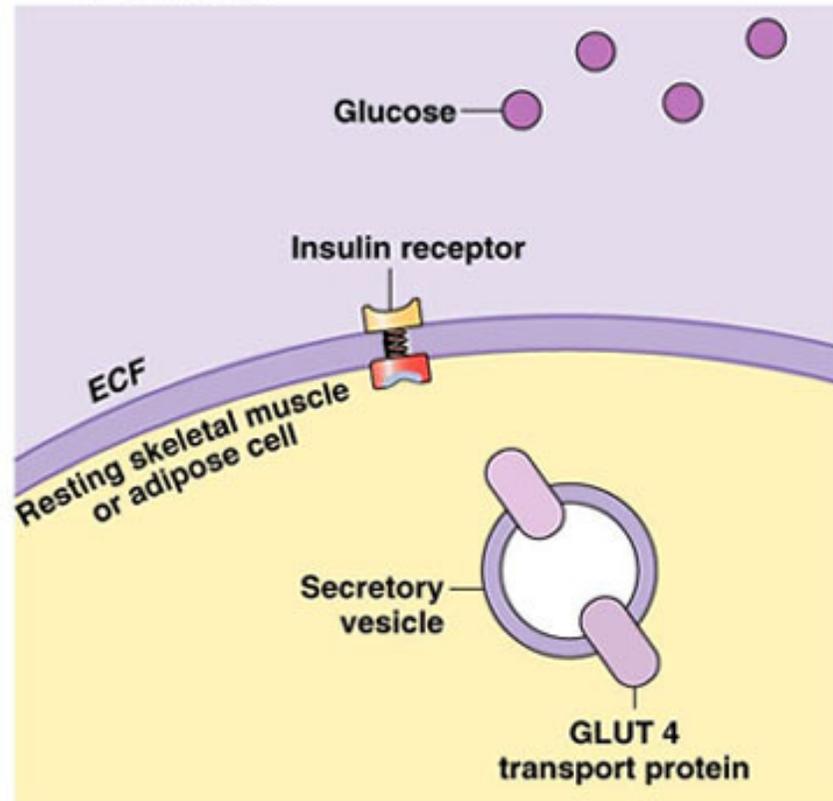




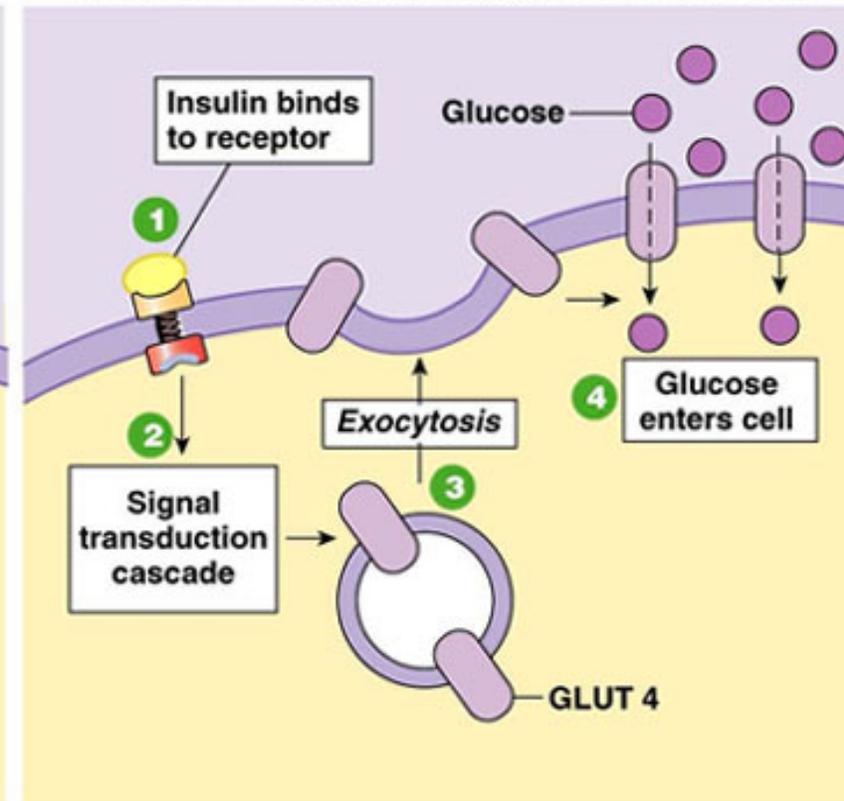


Control of Blood Glucose with Insulin

(a) In the absence of insulin, glucose cannot enter the cell.



(b) Insulin signals the cell to insert GLUT 4 transporters into the membrane, allowing glucose to enter cell.



Quiz Format- Sakai

- Ten multiple choice questions
- Taken directly from the worksheet-no surprises
- Memorization type questions
- Answers are provided after the quiz closes
- Students get a 3 day window for the quiz to be open
- The quiz question answers are randomized-but be careful that you don't have an answer that requires on an A and B are correct, because A and B may no longer be A and B

Lessons Learned

- How much is too much?
 - Bob Henshaw told me the sky is the limit. So I often had two quizzes a week, depending on the material
- Quizzes are worth 10% of their grades
- I allowed 2 drops- they could either not take 2 quizzes, or drop the two lowest scores, without any questions asked
- I had to be flexible- Pre-pandemic we had snow and a water main break so classes were cancelled twice. I dropped quizzes during that time, but still encouraged students to fill out the worksheets if they didn't want to take the quiz
- During the pandemic, very useful for asynchronous learning to avoid zoom burnout
- Be careful that you check the right answer in Sakai. The students will let you know immediately!