

## Eukaryotic Cell Structure & the Endomembrane System Homework Assignment

If working with others on this project, list names of all group members:

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Image of  
endomembrane  
system by  
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The purpose of this exercise is to familiarize you with the basics of cell structure and to encourage you to think about how the endomembrane system of eukaryotic cells operates. You will work in groups of four or fewer people. You may not use your textbook, but can use your lecture notes and PowerPoint. Please staple your complete work to this sheet.

1. Using crayons, markers or colored pencils, draw a cell and represent the following structures:

- plasma membrane
- nucleus
- rough endoplasmic reticulum
- smooth endoplasmic reticulum
- Golgi apparatus
- vesicles
- lysosomes

Label each structure and include a brief description of its role in the cell (what it does). You may want to create a key, if you don't want to include the writing within the cell itself. If you have a question, discuss with group members or instructor.

2. Draw the progress and fate of 2 lipopeptides (a molecule that is part lipid and part protein). One of the lipopeptides will be shipped out of the cell. The other is defective. You need to show how it is destroyed by the cell. Your illustration and explanation should explain:

- where the protein is created (*remember, the nucleus has the instructions for making protein and the ribosomes are where proteins are built*)
- which organelle adds the lipid to the protein, and how the protein gets to that organelle
- the ultimate fate of each of the two molecules (*how the good lipopeptide is shipped out of the cell, and how the bad lipopeptide is destroyed by the cell*).

In essence, “tell the story” of the making, processing, shipping, and, for one lipopeptide, the destruction of a defective molecule.