

BIOLOGY

CONCEPTS & CONNECTIONS
Fourth Edition

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CHAPTER 5 The Working Cell

Modules 5.20 – 5.21

From PowerPoint® Lectures for *Biology: Concepts & Connections*

5.20 Connection: Faulty membranes can overload the blood with cholesterol

- Harmful levels of cholesterol can accumulate in the blood if membranes lack cholesterol receptors

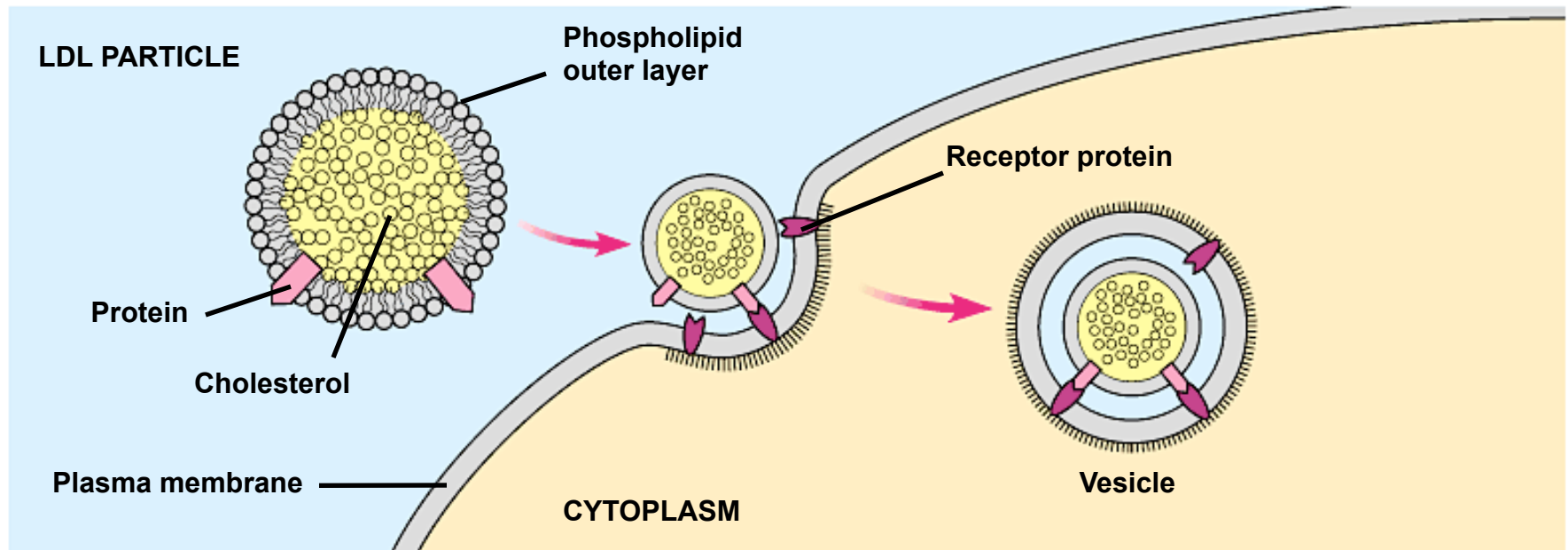


Figure 5.20

- hypercholesterolemia:
 - an inherited disorder characterized by high levels of cholesterol in the blood
 - caused by a lack of functional **LDL** (low density lipoproteins which carry cholesterol) receptors in liver cells

5.21 Chloroplasts and mitochondria make energy available for cellular work

- Enzymes and membranes are central to the processes that make energy available to the cell
- Chloroplasts carry out photosynthesis, using solar energy to produce glucose and oxygen from carbon dioxide and water
- Mitochondria consume oxygen in cellular respiration, using the energy stored in glucose to make ATP

- Nearly all the chemical energy that organisms use comes ultimately from sunlight
- Chemicals recycle among living organisms and their environment

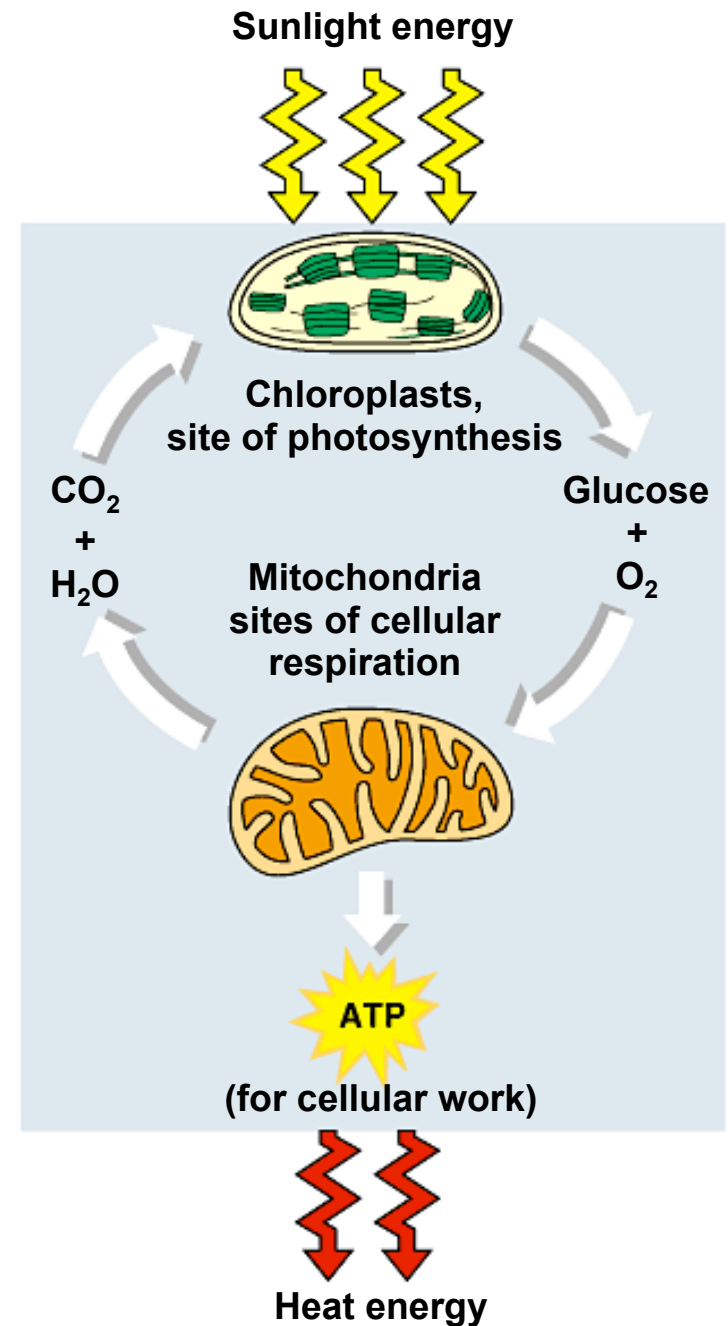


Figure 5.21