

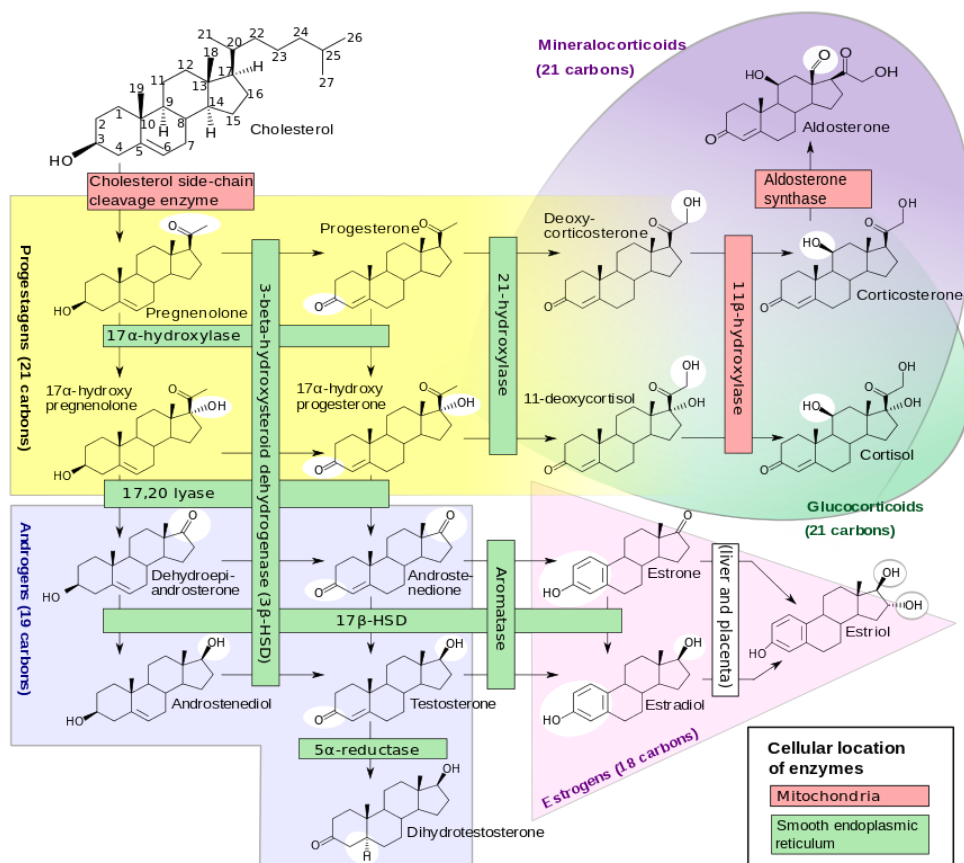
4.1.4

Lipoproteins

After ingestion, cholesterol and lipids are transported in the blood using micelle-like structures called **lipoproteins**. A micelle is a sphere consisting of a single layer of phospholipids. A lipoprotein is essentially a micelle with certain proteins embedded within the phospholipid monolayer. As the phospholipid hydrophobic tails orient toward the inside of the sphere, this hollow structure becomes a useful tool to transport lipids within its hydrophobic core. Cholesterol and triglycerides travel inside of these spheres and are shielded from the water.

You may have heard of these terms **HDL** and **LDL** before. These are two common lipoproteins that have gained a lot of attention as they appear to correlate with the risk of atherosclerosis development. Many brochures and websites refer to HDL as "Good Cholesterol" and LDL as "Bad Cholesterol."

In reality, there is no such thing as "good cholesterol" or "bad cholesterol." Cholesterol is simply a type of lipid that is necessary for life. It does not come as "bad" or "good." The idea of "good" and "bad" refer to the lipoproteins. LDL particles tend to accumulate in the walls of arteries. It is the overabundance of this LDL deposition that contributes to atherosclerosis, hence why it receives the term "bad." HDL or **High-Density Lipoprotein** is often called the "good cholesterol" because HDL particles help prevent atherosclerosis by extracting cholesterol from artery walls and disposing of it through biochemical reactions in the liver. Research has shown that lowering LDL cholesterol reduces the risk of heart attacks, strokes, and atherosclerosis.



Steroidogenesis. File: Steroidogenesis.svg; Author: Hoffmeier and Setters. Site: <https://en.wikipedia.org/wiki/File:Steroidogenesis.svg>; License: Creative Commons Attribution-Share Alike 3.0 Unported License.

This figure shows many of the steroid hormones that are synthesized from cholesterol, including estrogen, progesterone, testosterone, and cortisol.



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