

Lipoprotein Functions



PLAY PICMONIC

Chylomicron

Kite-mic

Chylomicrons are large triglyceride-rich lipoproteins secreted by intestinal absorptive cells (enterocytes) from dietary lipids, which consist of [triglycerides](https://en.wikipedia.org/wiki/Triglyceride) (85–92%), [phospholipids](https://en.wikipedia.org/wiki/Phospholipid) (6–12%), [cholesterol](https://en.wikipedia.org/wiki/Cholesterol) (1–3%), and [proteins](https://en.wikipedia.org/wiki/Protein) (1–2%). It is also known as ultra-low-density lipoprotein (VLDL).

Carries Dietary TGs to Peripheral Tissues

Carries Nutritional-plate TAG-triceratops to Peripheral Tissue-boxes

Chylomicron carries dietary TGs (triglycerides) to peripheral tissues. Dietary cholesterol is absorbed in the intestine and enters specialized lymphatic vessels called lacteals in the villi, flowing through the lymphatic system to the blood via the thoracic lymph duct. It delivers cholesterol to the liver as chylomicron remnants, which are mostly depleted of their TGs. Chylomicrons are responsible for transporting dietary fat from the gut to adipose tissue, liver, and muscle cells.

VLDL

Veiled-lady-bug-devil

VLDL stands for Very Low-Density Lipoprotein, and it is produced by the liver. The liver combines endogenous and dietary cholesterol with TGs to form VLDL particles.

Carries Hepatic TGs to Peripheral Tissue

Carries Liver TAG-triceratops to Peripheral Tissue-boxes

VLDL carries hepatic TGs to peripheral tissue. As blood flows through the body, muscle and fat tissues take triglycerides from VLDL and convert them into LDL.

IDL

ID-devil

IDL stands for Intermediate-Density Lipoprotein. IDL is formed from the degradation of VLDL or is also considered part of VLDL remnants.

Carries TGs and Cholesterol to Liver

Carries TAG-triceratops and Hamburgers to Liver

IDL carries TGs and cholesterol to the liver. The liver produces VLDL, which carries triglyceride to adipose tissue and muscle. As VLDL circulates, it becomes smaller and turns into IDL, which still contains cholesteryl esters. The liver takes up some IDL, while the rest becomes LDL after further triglyceride hydrolysis.

LDL

Ladybug-devil

LDL stands for Low-Density Lipoprotein. It is also known as bad cholesterol because it carries the cholesterol from the liver to the peripheral tissues.

Carries Hepatic Cholesterol to Peripheral Tissues

Carries Hamburger Liver to Peripheral Tissue-boxes

LDL carries hepatic cholesterol to peripheral tissues. It is formed by the modification of IDL through the action of hepatic lipase in both the liver and peripheral tissues. Subsequently, it is taken up by target cells via receptor-mediated endocytosis.

HDL

Hot-dog-angel

HDL stands for High-Density Lipoprotein. It is also known as good cholesterol because it transports cholesterol from peripheral tissues to the liver. HDL is the smallest and highest-density lipoprotein, secreted by both the liver and intestine.

Returns Excess Cholesterol from Peripheral Tissues to Liver

Returns Excess Hamburger from Peripheral Tissue-boxes to Liver

HDL returns excess cholesterol from peripheral tissues to the liver. Because of this role, HDL is also known as good cholesterol. It functions as a storage for apoC and apoE, which are required for chylomicron and VLDL metabolism.