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32-4100: Low Density Lipoprotein

Alternative Name : Low Density Lipoprotein,LDL.

Description

Source : Human plasma. LDL is a low-density lipoprotein that transports cholesterol and triglycerides from the liver to peripheral tissues. LDL (like all lipoproteins) facilitates the movement of fats and cholesterol within the water based solution of the blood stream. Each natural LDL particle contains a single Apo B-100 molecule (apolipoprotein B-100 is a protein with 4536 amino acid residues) that circulates the fatty acids and keeps them soluble in the aqueous environment. Additionally, the LDL core is highly-hydrophobic, consisting of linoleate (a polyunsaturated fatty acid) and about 1500 esterified cholesterol molecules. This core is enclosed by a shell of phospholipids and unesterified cholesterol in addition to a single copy of B-100 large protein (514 kD). Even though the LDL particles are approximately 22 nm in diameter and have a mass of about 3 million Daltons, they have a mass and size distribution since the LDL particles contain a varying number of fatty acids. LDL receptors are synthesized and placed in the plasma membrane when a cell requires cholesterol. The LDL receptors scatter freely until they link to clathrin-coated pits. LDL particles in the blood stream attach to these extracellular LDL receptors. The clathrin-coated pits at that time form vesicles that are endocytosed into the cell. Once the clathrin coat is dropped, the vesicles transport the LDL and their receptors to early endosomes, onto late endosomes to lysosomes. At this point the cholesterol esters in the LDL are hydrolysed. The LDL receptors are recovered back to the plasma membrane. Since LDLs convey cholesterol to the arteries and can be retained there by arterial proteoglycans initializing the formation of plaques, increased levels are linked to atherosclerosis, and thus heart attack, stroke, and peripheral vascular disease. And so, cholesterol within LDL lipoproteins is habitually called 'bad' cholesterol. This is a misconception since the cholesterol transported on LDL is the same as the one transported on other lipoprotein particles, it is in itself not 'bad', rather it is how and where the cholesterol is being transported, and in what amounts ultimately, which causes adverse effects. HDL / LDL ratio can give an indication of risk for arteriosclerosis.

Product Info

Amount :	100 mg
Storage condition :	Human LDL although stable at 4°C for 1 week, should be stored below -15°C (short term i.e. < 3 months) and below -70°C for long term.Human LDL can be further diluted with saline + 15% sucrose.

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