

LDL (5D8): sc-80628

BACKGROUND

Low density lipoprotein (LDL) represents a class of lipoprotein particles that functions to transport cholesterol and triglycerides from the liver and small intestine into cells and tissues. LDL is synthesized as very low density lipoproteins (VLDL), which then lose triglyceride because of the action of lipoprotein lipase (LPL) and become smaller and denser with a higher proportion of cholesterol. When a cell requires cholesterol, it synthesizes the necessary LDL receptors (LDLRs), which include LDLR, LRP, megalin, VLDLR and ApoER2. The LDLR is a cell surface transmembrane protein that mediates the uptake of LDL and its degradation in the lysosome, which provides cholesterol to cells. The cytoplasmic domain of the LDLR is necessary for the receptor to cluster in clathrin-coated pits, which promotes the rapid endocytosis of bound LDL. Increased levels of LDL play a role in atherosclerosis, stroke and peripheral vascular disease, while mutations in LDLRs cause familial hypercholesterolemia, an autosomal dominant disease that causes premature coronary atherosclerosis.

REFERENCES

1. Davis, C.G., et al. 1986. The J.D. mutation in familial hypercholesterolemia: amino acid substitution in cytoplasmic domain impedes internalization of LDL receptors. *Cell* 45: 15-24.
2. Davis, C.G., et al. 1987. The low density lipoprotein receptor. Identification of amino acids in cytoplasmic domain required for rapid endocytosis. *J. Biol. Chem.* 262: 4075-4082.
3. Hobbs, H.H., et al. 1992. Molecular genetics of the LDL receptor gene in familial hypercholesterolemia. *Hum. Mutat.* 1: 445-466.
4. Fass, D., et al. 1997. Molecular basis of familial hypercholesterolaemia from structure of LDL receptor module. *Nature* 388: 691-693.
5. Day, I.N., et al. 1997. Spectrum of LDL receptor gene mutations in heterozygous familial hypercholesterolemia. *Hum. Mutat.* 10: 116-127.
6. Gambhir, D.S. and Gambhir, J.K. 1997. Oxidised low density lipoprotein, antioxidants and coronary atherosclerosis. *Indian Heart J.* 49: 19-22.
7. Trommsdorff, M., et al. 1999. Reeler/disabled-like disruption of neuronal migration in knockout mice lacking the VLDL receptor and ApoE receptor 2. *Cell* 97: 689-701.
8. Mikhailenko, I., et al. 1999. Functional domains of the very low density lipoprotein receptor: molecular analysis of ligand binding and acid-dependent ligand dissociation mechanisms. *J. Cell Sci.* 112: 3269-3281.
9. Gazi, I.F., et al. 2006. Clinical importance and therapeutic modulation of small dense low-density lipoprotein particles. *Expert Opin. Biol. Ther.* 7: 53-72.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: APOB (human) mapping to 2p24.1.

SOURCE

LDL (5D8) is a mouse monoclonal antibody raised against purified plasma LDL oxidized with MDA of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

LDL (5D8) is recommended for detection of MDA-oxidized LDL of human origin by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RESEARCH USE

For research use only, not for use in diagnostic procedures.