LIPC gene

lipase C, hepatic type

Normal Function

The *LIPC* gene provides instructions for making an enzyme called hepatic lipase. This enzyme is produced by liver cells and released into the bloodstream where it helps with the conversion of fat-transporting molecules called very low-density lipoproteins (VLDLs) and intermediate-density lipoproteins (IDLs) to low-density lipoproteins (LDLs). The enzyme also assists in transporting molecules called high-density lipoproteins (HDLs) that carry cholesterol and triglycerides from the blood to the liver, where the HDLs deposit these fats so they can be redistributed to other tissues or removed from the body. Hepatic lipase helps to keep these fat-transporting molecules in balance by regulating the formation of LDLs and the transport of HDLs. Normally, high levels of HDL (known as "good cholesterol") and low levels of LDL (known as "bad cholesterol") are protective against heart disease.

Health Conditions Related to Genetic Changes

Hepatic lipase deficiency

At least 10 mutations in the *LIPC* gene have been found to cause hepatic lipase deficiency. This condition leads to abnormal levels of various fats (lipids) in the bloodstream, although it is unclear whether these changes impact the risk of developing heart disease. The *LIPC* gene mutations that cause this condition change single protein building blocks (amino acids) in the hepatic lipase enzyme. These mutations prevent the enzyme's release from the liver or decrease its activity in the bloodstream. As a result, VLDLs and IDLs are not efficiently converted into LDLs, and HDLs carrying cholesterol and triglycerides remain in the bloodstream. It is unclear what effect this change in fat levels has on people with hepatic lipase deficiency, as some affected people develop an accumulation of fatty deposits on the artery walls (atherosclerosis) and heart disease in mid-adulthood, while others do not.

Age-related macular degeneration

MedlinePlus Genetics provides information about Age-related macular degeneration

Other Names for This Gene

- HDLCQ12
- hepatic lipase
- HL
- HTGL
- lipase C, hepatic
- lipase member C
- lipase, hepatic
- LIPH

Additional Information & Resources

Tests Listed in the Genetic Testing Registry

- Tests of LIPC (https://www.ncbi.nlm.nih.gov/gtr/all/tests/?term=3990[geneid])

Scientific Articles on PubMed

- PubMed (https://pubmed.ncbi.nlm.nih.gov/?term=%28%28LIPC%5BTIAB%5D%29+OR+%28hepatic+lipase%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+1080+days%22%5Bdp%5D)

Catalog of Genes and Diseases from OMIM

- LIPASE, HEPATIC; LIPC (https://omim.org/entry/151670)

Gene and Variant Databases

- NCBI Gene (https://www.ncbi.nlm.nih.gov/gene/3990)
- ClinVar (https://www.ncbi.nlm.nih.gov/clinvar?term=LIPC[gene])

References

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- Kobayashi J, Miyashita K, Nakajima K, Mabuchi H. Hepatic Lipase:

aComprehensive View of its Role on Plasma Lipid and Lipoprotein Metabolism. JAtheroscler Thro 2015;22(10):1001-11. doi: 10.5551/jat.31617. Epub 2015 Jul21. Citation on PubMed (https://pubmed.ncbi.nlm.nih.gov/26194979)

- Tilly-Kiesi M, Schaefer EJ, Knudsen P, Welty FK, Dolnikowski GG, Taskinen MR, Lichtenstein AH. Lipoprotein metabolism in subjects with hepatic lipasedeficiency. Metabolism. 2004 Apr;53(4):520-5. doi: 10.1016/j.metabol.2003.10.020. Citation on PubMed (https://pubmed.ncbi.nlm.nih.gov/15045702)

Genomic Location

The *LIPC* gene is found on chromosome 15 (https://medlineplus.gov/genetics/chromosome/15/).

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