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Quest® Cardiometabolic Center of Excellence™ at ClevelandHeartLab®

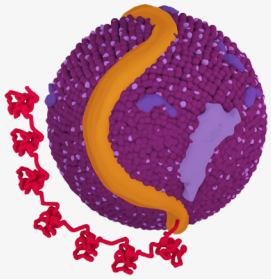
Lipoprotein (a) (Lp(a))

Lipoprotein (a) identifies proatherogenic lipoprotein and is a marker for cardiovascular risk stratification

Test description

Lipoprotein (a) (Lp(a)) is an LDL-like particle with an apolipoprotein(a) bound to the apolipoprotein B subunit.[1] Lp(a) levels are primarily genetically predetermined, and is elevated in 20%-30% of the population.[2-4]

Due to its proatherogenic, prothrombotic, and proinflammatory properties, Lp(a) excess represents an independent, lifelong, causal risk factor for cardiovascular disease (CVD) and mortality.[2,5]



Clinical significance

- Atherosclerotic cardiovascular disease (ASCVD) risk is positively correlated with Lp(a) levels[6]
- Elevated Lp(a) is associated with a 5x risk for coronary artery stenosis[7]
- Lp(a) excess is associated with a more than 3x increase in myocardial infarction and a 1.5x increase in cardiovascular mortality[8]
- Individuals with elevated Lp(a) had 1.6x greater risk for ischemic stroke[9]

Individuals suitable for testing

- Individuals with 1 or more risk factors for the development of CVD
- Individuals at borderline risk (5%-<7.5% 10-year ASCVD risk) or intermediate risk (7.5 %–<20% 10-year ASCVD risk)[10]
- Personal or family history of premature ASCVD, familial hypercholesterolemia, or Lp(a) excess[11]
- Individuals with a history of aortic stenosis, ischemic stroke, acute coronary syndrome, or progressive ASCVD despite optimal medical therapy[5,11]

Lp(a) levels are associated with an increased risk for:

→ Cardiovascular disease → Myocardial infarction/stroke → Aortic stenosis

Lp(a) relative risk (nmol/L)

< 75 Optimal	75–125 Moderate	> 125 High

Treatment considerations*

A global risk reduction strategy should be considered when Lp(a) is elevated.

- Optimize control of modifiable cardiovascular risk factors, such as lipids, blood pressure, and insulin resistance, based on the current guideline recommendations
- Although diet and lifestyle do not lower Lp(a) levels, they can help to mitigate the cardiovascular risks attributable to it[12]
- Lipid apheresis is used to treat familial hypercholesterolemia and can be considered for those with Lp(a) excess[13]
- While there are no current FDA-approved pharmaceuticals for lowering Lp(a), PCSK9 inhibitors and niacin have been shown to reduce Lp(a) levels[14,15]
- An inverse relationship has been shown for Lp(a) levels and estrogen[16]

*The treatment considerations are provided for educational purposes only and are not intended as medical advice. A healthcare provider's test selection, interpretation, diagnosis, and patient management decisions should be based on their education, clinical expertise, and assessment of the patient. Specific treatment plans should be provided and reviewed by the treating provider.

Test Name	Quest Test Code	CHL Test Code	CPT Code[a]	Preferred Specimen(s)
Lipoprotein (a)	91729	91729	83695	Serum

[a]The CPT codes provided are based on AMA guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.

Assess Lp(a) to identify risk for cardiovascular disease in your patients.
For more information, contact your Cardiometabolic account executive.

References

1. Reyes-Soffer G, Ginsberg HN, Berglund L, et al. Lipoprotein(a): a genetically determined, causal, and prevalent risk factor for atherosclerotic cardiovascular disease: a scientific statement from the American Heart Association. *ATVB*. 2022;42(1). doi:10.1161/ATV.0000000000000147 2. Tsimikas S, Fazio S, Ferdinand KC, et al. NHLBI Working Group recommendations to reduce lipoprotein(a)-mediated risk of cardiovascular disease and aortic stenosis. *JACC*. 2018;71(2):177-192. doi:10.1016/j.jacc.2017.11.014 3. Schmidt K, Noureen A, Kronenberg F, Utermann G. Structure, function, and genetics of lipoprotein (a). *J Lipid Res*. 2016;57(8):1339-1359. doi:10.1194/jlr.R067314 4. Mack S, Coassin S, Rueedi R, et al. A genome-wide association meta-analysis on lipoprotein(a) concentrations adjusted for apolipoprotein(a) isoforms. *J Lipid Res*. 2017;58(9):1834-1844. doi:10.1194/jlr.M076232 5. Wilson DP, Jacobson TA, Jones PH, et al. Use of Lipoprotein(a) in clinical practice: A biomarker whose time has come. A scientific statement from the National Lipid Association. *J Clin Lipidol*. 2019;13(3):374-392. doi:10.1016/j.jacl.2019.04.010 6. Finneran P, Pampana A, Khetarpal SA, et al. Lipoprotein(a) and coronary artery disease risk without a family history of heart disease. *JAHA*. 2021;10(5):e017470. doi:10.1161/JAHA.120.017470 7. Kamstrup PR, Tybjærg-Hansen A, Nordestgaard BG. Genetic evidence that lipoprotein(a) associates with atherosclerotic stenosis rather than venous thrombosis. *ATVB*. 2012;32(7):1732-1741. doi:10.1161/ATVBAHA.112.248765 8. Kamstrup PR, Tybjaerg-Hansen A, Steffensen R, Nordestgaard BG. Genetically elevated lipoprotein(a) and increased risk of myocardial infarction. *JAMA*. 2009;301(22):2331–2339 doi:10.1001/jama.2009.801 9. Langsted A, Nordestgaard BG, Kamstrup PR. Elevated lipoprotein(a) and risk of ischemic stroke. *JACC*. 2019;74(1):54-66. doi:10.1016/j.jacc.2019.03.524 10. Arnett DK, Blumenthal RS, Albert MA, et al. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease. *Circulation*. 2019;140(11). doi:10.1161/CIR.0000000000000678 11. Virani SS, Koschinsky ML, Maher L, et al. Global think tank on the clinical considerations and management of lipoprotein(a): The top questions and answers regarding what clinicians need to know. *Progress in Cardiovascular Diseases*. 2022;73:32-40. doi:10.1016/j.pcad.2022.01.002 12. Khera AV, Emdin CA, Drake I, et al. Genetic risk, adherence to a healthy lifestyle, and coronary disease. *N Engl J Med*. 2016;375(24):2349-2358. doi:10.1056/NEJMoa1605086 13. Greco MF, Sirtori CR, Corsini A, Ezhov M, Sampietro T, Ruscica M. Lipoprotein(a) lowering—from lipoprotein apheresis to antisense oligonucleotide approach. *JCM*. 2020;9(7):2103. doi:10.3390/jcm9072103 14. Schwartz GG, Szarek M, Bittner VA, et al. Lipoprotein(a) and benefit of pcsk9 inhibition in patients with nominally controlled LDL cholesterol. *JACC*. 2021;78(5):421-433. doi:10.1016/j.jacc.2021.04.102 15. Sahebkar A, Reiner Z, Simental-Mendia LE, Ferretti G, Cicero AF. Effect of extended-release niacin on plasma lipoprotein(a) levels: a systematic review and meta-analysis of randomized placebo-controlled trials. *Metabolism*. 2016;65(11):1664–1678. doi:10.1016/j.metabol.2016.08.007 16. Cook NR, Mora S, Ridker PM. Lipoprotein(a) and cardiovascular risk prediction among women. *JACC*. 2018;72(3):287-296. doi:10.1016/j.jacc.2018.04.060.

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