

# Highlights of the 2021 AHA Scientific Statement: Lp(a): A Genetically Determined, Causal, and Prevalent Risk Factor for ASCVD<sup>1</sup>



## GENETIC

Lp(a) plasma levels are **~70% to ≥90%** genetically determined, arising from a **codominant expression of 2 *LPA* alleles**



## INDEPENDENT AND CAUSAL

Elevated Lp(a) causes ASCVD through mechanisms linked to increased **atherogenesis, inflammation, thrombosis, and calcification**



## CLINICALLY IMPORTANT

Elevated Lp(a) increases risk of ASCVD and CAVD, thus impacting **clinical decision-making on risk management**



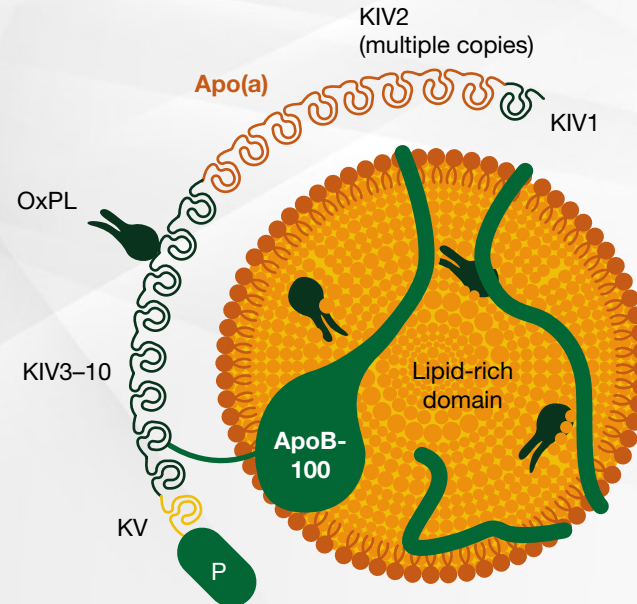
## WHAT IS Lp(a)?

- Lp(a) is an **apoB**-containing lipoprotein, linked to a hydrophilic, highly glycosylated protein called **apo(a)**, with **oxidized phospholipids (OxPL)** bound to apo(a) and the lipid core



## RATIONALE FOR SCREENING

- Although Lp(a) is a common, genetically inherited, and clinically important ASCVD risk factor that can be measured with a **simple blood test**, in most patients Lp(a) is **not measured, neither before nor after they have an ASCVD event**
- The evidence in favor of Lp(a) screening is strongest for those with a **family or personal history of ASCVD**, with consideration of **cascade screening** in appropriate individuals
- Median Lp(a) levels are highest in individuals of African or South Asian descent



## CLINICAL IMPLEMENTATION OF Lp(a) LEVELS IN RISK ASSESSMENT

- ACC/AHA 2019 cholesterol and primary prevention guidelines recommend using Lp(a) level as a **risk-enhancing factor** that, if measured, would favor statin initiation among individuals at borderline (5%–7.4%) or intermediate (7.5%–19.9%) 10-year predicted risk for ASCVD
- Based on the following formula:

$$\text{Predicted 10-year risk} \times [1.11^{(\text{patient's Lp(a) level in nmol/L}/50)}]$$



## CURRENT GAPS IN KNOWLEDGE

- Determine how genetic architecture of the *LPA* gene accounts for differences in Lp(a) levels in different ancestry groups
- Apo(a) synthesis and Lp(a) particle assembly
- Mechanisms of Lp(a) clearance