SUPPLEMENTAL MATERIAL

Table S1: Sensitivity analyses for Adjusted Odds Ratio of CAC or ECC > 100 Comparing Elevated Lp(a) to Normal Lp(a) (adjusting for corrected LDL-C)

CAC/ECC	Lp(a) ≤ 50 mg/dL	Lp(a) > 50 mg/dL
CAC		
Model1	reference	0.98 (0.78-1.23)
Model2	reference	**1.47 (1.13-1.91)**
Model3	reference	**1.41 (1.09-1.84)**
Aortic Valve		
Model1	reference	**1.36 (1.04-1.79)**
Model2	reference	**1.83 (1.35-2.48)**
Model3	reference	**1.80 (1.33-2.45)**
Aortic Valve Ring		
Model1	reference	1.18 (0.95-1.47)
Model2	reference	**1.47 (1.15-1.87)**
Model3	reference	**1.42 (1.11-1.81)**
Mitral Valve		
Model1	reference	1.23 (0.96-1.57)
Model2	reference	**1.40 (1.08-1.83)**
Model3	reference	**1.38 (1.06-1.80)**
Thoracic Aorta		
Model1	reference	1.06 (0.83-1.34)
Model2	reference	**1.40 (1.07-1.82)**
Model3	reference	**1.39 (1.06-1.81)**

Model 1 is unadjusted

Model 2 is adjusted for age, race, sex, education level, smoking status, alcohol drinking status and cardiometabolic risk factors(body mass index, systolic blood pressure, diabetes, antihypertensive medication use, high density lipoprotein-C, low density lipoprotein-C (corrected) and Triglycerides)

Model 3 is Model 2 + lipid lowering therapy

CAC: Coronary artery calcium

ECC: Extra-coronary calcification

Table S2: Adjusted Difference of ln(CAC+1) or ln(ECC+1) with 1-unit increment in log(Lp(a))

CAC/ECC	1-unit increment in log(Lp(a))
Thoracic Aorta	
Model 1	**-0.09 (-0.18--0.01)**
Model 2	0.06 (-0.02-0.14)
Model 3	0.06 (-0.02-0.14)
Aortic Valve	
Model 1	**0.11 (0.03-0.18)**
Model 2	**0.20 (0.12-0.28)**
Model 3	**0.19 (0.11-0.27)**
Aortic Valve Ring	
Model 1	0.05 (-0.02-0.12)
Model 2	**0.12 (0.05-0.20)**
Model 3	**0.11 (0.04-0.19)**
Mitral Valve	
Model 1	0.06 (-0.03-0.15)
Model 2	**0.13 (0.04-0.23)**
Model 3	**0.13 (0.03-0.22)**
CAC	
Model 1	-0.02 (-0.10-0.06)
Model 2	**0.11 (0.04-0.18)**
Model 3	**0.10 (0.03-0.18)**

Model 1 is unadjusted

Model 2 is adjusted for age, race, sex, education level, smoking status, alcohol drinking status and cardiometabolic risk factors(body-mass index, systolic blood pressure, diabetes, antihypertensive medication use, high density lipoprotein-C and Triglycerides)

Model 3 is Model 2 + lipid lowering therapy

CAC: Coronary artery calcium

ECC: Extra-coronary calcification

Table S3: Adjusted Odds Ratio of CAC or ECC > 100 Comparing Lp(a) categories to the lowest group

CAC/ECC	≤ 10 mg/dL	10-20 mg/dL	20-30 mg/dL	30-50 mg/dL	> 50 mg/dL
Thoracic Aorta					
Model 1	reference	0.82 (0.64-1.06)	0.81 (0.57-1.15)	0.66 (0.48-0.89)	0.94 (0.72-1.21)
Model 2	reference	0.90 (0.68-1.20)	1.09 (0.74-1.61)	1.02 (0.72-1.44)	**1.35 (1.01-1.80)**
Model 3	reference	0.90 (0.67-1.19)	1.09 (0.74-1.61)	1.02 (0.72-1.44)	**1.34 (1.00-1.79)**
Aortic Valve					
Model 1	reference	1.24 (0.90-1.70)	1.33 (0.87-2.02)	1.16 (0.78-1.71)	**1.50 (1.11-2.03)**
Model 2	reference	1.29 (0.92-1.82)	**1.67 (1.06-2.62)**	**1.64 (1.08-2.49)**	**2.20 (1.57-3.10)**
Model 3	reference	1.29 (0.92-1.81)	**1.66 (1.06-2.62)**	**1.65 (1.08-2.51)**	**2.17 (1.54-3.05)**
Aortic Valve Ring					
Model 1	reference	0.99 (0.78-1.26)	**1.44 (1.04-2.00)**	1.06 (0.79-1.42)	1.23 (0.97-1.56)
Model 2	reference	0.97 (0.75-1.26)	**1.53 (1.08-2.16)**	1.22 (0.88-1.68)	**1.46 (1.13-1.90)**
Model 3	reference	0.96 (0.74-1.25)	**1.52 (1.08-2.16)**	1.22 (0.88-1.68)	**1.41 (1.09-1.83)**
Mitral Valve					
Model 1	reference	0.99 (0.75-1.31)	1.15 (0.80-1.67)	0.96 (0.68-1.36)	1.24 (0.95-1.61)
Model 2	reference	0.99 (0.74-1.32)	1.37 (0.92-2.03)	1.16 (0.80-1.69)	**1.45 (1.09-1.92)**
Model 3	reference	0.98 (0.74-1.31)	1.37 (0.92-2.03)	1.17 (0.80-1.69)	**1.43 (1.07-1.90)**
CAC					
Model 1	reference	0.87 (0.68-1.12)	1.08 (0.77-1.53)	0.90 (0.66-1.21)	0.94 (0.74-1.20)
Model 2	reference	0.94 (0.71-1.23)	1.25 (0.86-1.82)	1.24 (0.86-1.79)	**1.46 (1.10-1.94)**
Model 3	reference	0.92 (0.70-1.22)	1.24 (0.86-1.80)	1.24 (0.86-1.78)	**1.40 (1.06-1.87)**

Model 1 is unadjusted

Model 2 is adjusted for age, race, sex, education level, smoking status, alcohol drinking status and cardiometabolic risk factors(body-mass index, systolic blood pressure, diabetes, antihypertensive medication use, high density lipoprotein-C and Triglycerides)

Model 3 is Model 2 + lipid lowering therapy

CAC: Coronary artery calcium

ECC: Extra-coronary calcification

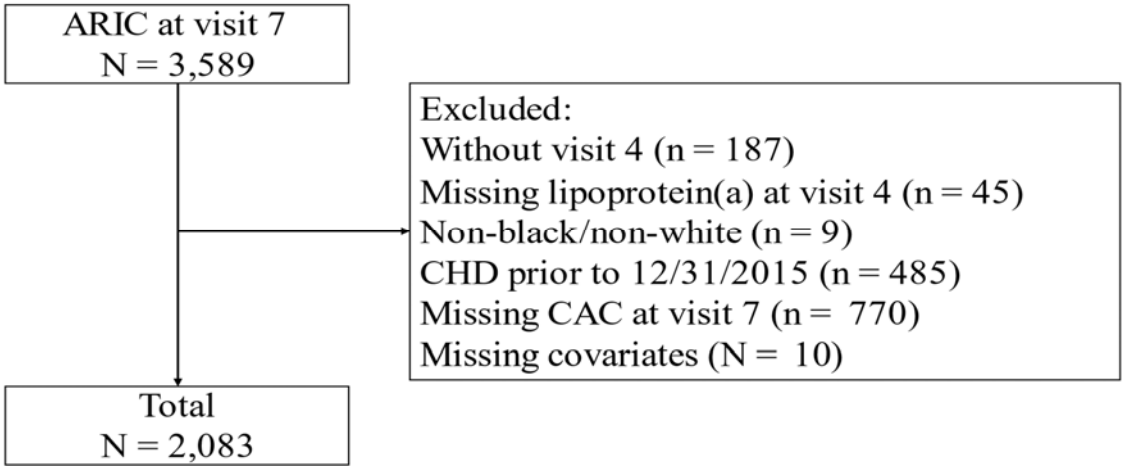
Table S4: Reviewer operating curve C-statistics testing incremental value of Lp(a) over base model

CAC/ECC	ROC	P value (chi-square test)
CAC		
Base model	0.7447 (0.7233-0.7660)	0.757
Base model+ Lp(a)	0.7450 (0.7236-0.7663)	
Thoracic Aorta		
Base model	0.7223 (0.6988-0.7458)	0.7482
Base model+ Lp(a)	0.7225 (0.6990-0.7460)	
Aortic valve ring		
Base model	0.6903 (0.6677-0.7129)	0.3548
Base model+ Lp(a)	0.6913 (0.6688-0.7139)	
Aortic valve		
Base model	0.7101 (0.6809-0.7392)	0.0238
Base model+ Lp(a)	0.7211 (0.6920-0.7501)	
Mitral valve		
Base model	0.6481 (0.6222-0.6741)	0.1432
Base model+ Lp(a)	0.6543 (0.6284-0.6802)	

Base model includes age, race, sex, education level, smoking and drinking status, body-mass index, systolic blood pressure, diabetes, antihypertensive medication use, high density lipoprotein-C, and triglycerides

CAC: Coronary artery calcium

Figure S1: Participant flow diagram from ARIC visit 7



CHD: Coronary heart disease, CAC: Coronary artery calcium