

# **SUPPLEMENTAL MATERIAL**

**Table S1.** Odds ratios of myocardial infarction by tertile of Lifestyle Cardiovascular Risk Score and Genetic Risk Score, for interaction and joint analysis among Hispanic/Latino adults living in Costa Rica.

<b>Interaction Analysis</b>	GRS Low	GRS Medium	GRS High	<i>P</i> -interaction
LCRS				
Low Risk	1 [Ref]	1 [Ref]	1 [Ref]	0.33
Medium Risk	2.07 (1.06, 4.03)	2.08 (1.32, 3.28)	1.46 (0.76, 2.80)	
High Risk	3.77 (1.84, 7.73)	4.11 (2.49, 6.78)	2.39 (1.26, 4.55)	
<b>Joint Analysis</b>	GRS Low	GRS Medium	GRS High	<i>P</i> -overall joint model
LCRS				
Low Risk	1 [Ref]	1.56 (1.11, 2.18)	1.74 (1.22, 2.49)	<1.00x10 <sup>-7</sup>
Medium Risk	1.84 (1.28, 2.65)	2.80 (1.99, 3.94)	2.65 (1.86, 3.78)	
High Risk	5.02 (3.46, 7.29)	5.44 (3.84, 7.69)	5.43 (3.71, 7.94)	

LCRS: Lifestyle Cardiovascular Risk Score (in tertiles), GRS: Genetic Risk Score (in tertiles). The analyses were matched on age, sex, and area of residence. The GRS included the sum of 14SNPs risk alleles: rs4977574, rs10757274, rs2383206, rs1333049 (*CDKN2A/2B*); rs646776, rs599839 (*CELSR2-PSRC1-SORT1*); rs501120, rs1746048 (*CXCL12*); rs2259816 (*HNF1A, C12orf43*); rs9818870 (*MRAS*); rs2048327 (*SLC22A3*); rs3127599 (*LPAL2*); rs7767084 and rs10755578 (*LPA*). The LCRS used estimated coefficients as weights for each factor: unhealthy diet, physical inactivity, smoking, elevated waist:hip ratio, low/high alcohol intake, low socioeconomic status.

**Table S2.** Odds of myocardial infarction for the Lifestyle Cardiovascular Risk Score and the simplified 3-SNP Genetic Risk Score among Hispanic/Latino adults living in Costa Rica

Lifestyle Cardiovascular Risk Score*		Genetic Risk Score (3 SNPs)*	
Tertiles (range)	OR (95% CI)	Tertiles (range)	OR (95% CI)
Low Risk (-2.02, -0.61)	Ref. (1.00)	Low Risk (0,3)	Ref. (1.00)
Medium Risk, (-0.61,-0.13)	1.71 (1.41, 2.07)	Medium Risk (4, 4)	1.06 (0.89, 1.27)
High Risk (-0.13, 1.28)	3.71 (3.02, 4.55)	High Risk (5, 6)	1.49 (1.24, 1.77)
<i>P</i> -trend	<1.00x10 <sup>-7</sup>		1.46x10 <sup>-4</sup>
Continuous (per unit)	2.72 (2.33, 3.17)		1.14 (1.07, 1.22)

\*Matched on age, sex, area of residence.

Lifestyle Cardiovascular Risk Score tertiles: Low Risk, n=1022; Medium Risk, n=1023, High Risk, n=1023. The LCRS used estimated coefficients as weights for each factor: unhealthy diet, physical inactivity, smoking, elevated waist:hip ratio, low/high alcohol intake, low socioeconomic status.

Genetic Risk Score tertiles: Low Risk, n=861; Medium Risk, n=1116; High Risk, n=1091. The GRS included the sum of three MI-associated risk alleles (rs4977574 at *CDKN2A/2B*; rs646776 at *CELSR2-PSRC1-SORT1*, and rs501120 at *CXCL12*).

**Table S3.** Joint and interaction associations of individual lifestyle cardiovascular risk factors with the simplified 3-SNP genetic risk score (in tertiles) on myocardial infarction among Hispanic/Latino adults living in Costa Rica

	GRS Tertiles			P-overall joint model	P for interaction
	T1=GRS (3 SNPs) low risk	T2= GRS (3 SNPs) medium risks	T3=GRS (3 SNPs) high risk		
Diet Score*				5.34X10 <sup>-5</sup>	0.94
High adherence	1	1.14 (0.82, 1.59)	1.64 (1.17, 2.30)		
Medium adherence	1.26 (0.89, 1.78)	1.29 (0.93, 1.78)	1.85 (1.33, 2.56)		
Low adherence	1.63 (1.12, 2.34)	1.58 (1.10, 2.26)	2.16 (1.53, 3.04)		
Physical activity <sup>†</sup>				1.59x10 <sup>-5</sup>	0.53
High	1	0.97 (0.69,1.35)	1.34 (0.95, 1.90)		
Medium	0.82 (0.57, 1.18)	1.11 (0.79, 1.55)	1.55 (1.12, 2.15)		
Low	1.42 (1.01, 2.06)	1.25 (0.99, 1.76)	1.85 (1.33, 2.59)		
Smoking				1.00x10 <sup>-7</sup>	0.65
Never	1	1.01 (0.80, 1.27)	1.51 (1.20, 1.90)		
Current	2.38 (1.74, 3.26)	2.70 (2.01, 3.62)	3.31 (2.45, 4.48)		
Alcohol consumption <sup>‡</sup>					
Never	1	1.09 (0.85, 1.40)	1.39 (1.10, 1.78)		
Low	0.80 (0.53, 1.23)	0.71 (0.46, 1.09)	1.40 (0.93, 2.12)		
Moderate	0.68 (0.39, 1.16)	0.41 (0.24, 0.73)	0.73 (0.46, 1.17)	0.003	0.49
High	0.70 (0.47, 1.05)	0.80 (0.56, 1.13)	1.32 (0.92, 1.89)		
Waist:hip ratio <sup>§</sup>					
Normal	1	0.93 (0.54, 1.59)	1.51 (0.88, 2.59)	1.00x10 <sup>-7</sup>	0.81
Elevated	1.93 (1.24, 3.01)	2.04 (1.31, 3.18)	2.84 (1.82, 4.42)		
Socioeconomic Status <sup>  </sup>					
High	1	0.90 (0.65, 1.26)	1.27 (0.91, 1.78)	8.55x10 <sup>-5</sup>	0.77
Medium	1.03 (0.70, 1.45)	1.14 (0.82, 1.58)	1.70 (1.21, 2.38)		
Low	1.25 (0.86, 1.82)	1.42 (0.99, 2.03)	1.86 (1.29, 2.69)		

Matched on age, sex, area of residence and adjusted for the other lifestyle components. The GRS included the sum of three MI-associated risk alleles (rs4977574 at *CDKN2A/2B*; rs646776 at *CELSR2-PSRC1-SORT1*, and rs501120 at *CXCL12*).

\*A composite measure of total dietary intake of saturated fats, cholesterol, polyunsaturated fats, fiber, folate, and adipose tissue  $\alpha$ -linolenic acid (ALA) and total *trans* fats. The total diet score range from 0 (lowest adherence to the dietary recommendations) to 28 (highest adherence).

<sup>†</sup>Physical activity was defined as total METS expended over a 24-h period.

<sup>‡</sup>Alcohol consumption categories were: never=0, low= 0.1–5.0 g/day, moderate=5.1–10 g/day, and high as > 10 g/day.

<sup>§</sup>Elevated waist:hip ratio were >0.85 for women and >0.90 for men.

<sup>||</sup>Socioeconomic status is a continuous variable that accounts for education, occupation, income, and household possessions. A higher score indicates a higher socioeconomic status.

GRS tertiles + Diet Score: T1 + High adherence, n= 282; T1 + Medium adherence, n=307; T1 + Low adherence, n=272; T2 + High adherence, n=373; T2 + Medium adherence, n=400; T2 + Low adherence, n=343; T3 + High adherence, n= 334; T3 + Medium adherence, n=378; T3 + Low adherence, n=379.

GRS tertiles + Physical Activity: T1 + High, n= 279; T1 + Medium, n=275; T1 + Low, n=307; T2 + High, n= 396; T2 +Medium, n=376; T2 + Low, n=344; T3 + High, n=348; T3 +Medium, n=372; T3+ Low, n=371

GRS tertiles + Smoking: T1 + Never, n=589; T1 + Current, n=272; T2 + Never, n=773; T2 + Current, n=343; T3 + Never, n=756; T3 +Current, n=335;

GRS tertiles + Alcohol consumption: T1 + Never, n=506; T1 +Low, n=124; T1 + Moderate, n=70; T1 + High, n=161; T2 + Never, n=678; T2 +Low, n=127; T2 + Moderate, n=84; T2 + High, n=227; T3 + Never, n=657; T3 +Low, n=130; T3 + Moderate, n=96; T3 + High, n=208

GRS tertiles + Waist to hip ratio: T1 + Normal, n=112; T1 +Elevated, n=749; T2 + Normal, n=150; T2 + Elevated, n=966; T3 + Normal, n=133; T3 + Elevated, n=958;

GRS tertiles + Socioeconomic Status: T1 + High, n=277; T1 +Medium, n=342; T1 + Low, n=242; T2 + High, n=369; T2 +Medium, n=443; T2 + Low, n=304; T3 + High, n=359; T3 +Medium, n=414; T3+ Low, n=318

**Table S4.** Odds ratios of myocardial infarction by tertile of Lifestyle Cardiovascular Risk Score and the simplified 3-SNP Genetic Risk Score, for interaction and joint analysis among Hispanic/Latino adults living in Costa Rica.

<b>Interaction Analysis</b>	GRS (3 SNPs) Low	GRS (3 SNPs) Medium	GRS (3 SNPs) High	<i>P</i> -interaction
LCRS				
Low Risk	1 [Ref]	1 [Ref]	1 [Ref]	0.44
Medium Risk	1.99 (1.38, 2.87)	1.44 (1.05, 1.96)	1.74 (1.28, 2.38)	
High Risk	4.05 (2.81, 5.82)	3.91 (2.82, 5.40)	3.28 (2.37, 4.53)	
<b>Joint Analysis</b>	GRS (3 SNPs) Low	GRS (3 SNPs) Medium	GRS (3 SNPs) High	<i>P</i> -overall joint model
LCRS				
Low Risk	1 [Ref]	1.20 (0.86, 1.67)	1.66 (1.18, 2.33)	<1.00x10 <sup>-7</sup>
Medium Risk	1.99 (1.38, 2.87)	1.72 (1.22, 2.42)	2.89 (2.06, 4.05)	
High Risk	4.05 (2.81, 5.82)	4.68 (3.29, 6.65)	5.43 (3.80, 7.76)	

LCRS: Lifestyle Cardiovascular Risk Score (in tertiles), GRS: Genetic Risk Score (in tertiles). The analyses were matched on age, sex, and area of residence. The GRS included the sum of three MI-associated risk alleles (rs4977574 at *CDKN2A/2B*; rs646776 at *CELSR2-PSRC1-SORT1*, and rs501120 at *CXCL12*). The LCRS used estimated coefficients as weights for each factor: unhealthy diet, physical inactivity, smoking, elevated waist:hip ratio, low/high alcohol intake, low socioeconomic status.

Interaction analysis: LCRS and GRS Low: Low Risk, n=290; Medium Risk, n=266; High Risk, n=305; LCRS and GRS Medium: Low Risk, n=387; Medium Risk, n=373; High Risk, n=356; LCRS and GRS High: Low Risk, n=345; Medium Risk, n=384; High Risk, n=362

Joint Analysis: LCRS + GRS: Low Risk + Low, n=290; Medium Risk + Low, n=266; High Risk + Low, n=305; Low Risk + Medium, n=387; Medium Risk + Medium, n=373; High Risk + Medium, n=356; Low Risk + High, n=345; Medium Risk + High, n=384; High Risk + High, n=362