



Supplementary Figure 1 The correlation between directly measured and calculated low density lipoprotein cholesterol. LDL: Low density lipoprotein.

Supplemental Table 1 Comparison of calculated and directly measured LDL cholesterol levels

	All (<i>n</i> = 5840)	Triglycerides < 400 mg/dL (<i>n</i> = 5730)
Friedewald LDL cholesterol	0.917	0.934
Sampson-NIH2 LDL cholesterol	0.944	0.949

Data are expressed as the coefficient of determination (R^2). Blue color indicates results for individuals with triglyceride levels ≥ 400 mg/dL. LDL: Low density lipoprotein.

Supplemental Table 2 Univariate associations with incident type 2 diabetes

Variables	HR per 1-SD (95%CI)	<i>P</i> value
Age	1.20 (1.15 - 1.26)	<0.001
Female	0.85 (0.77 - 0.93)	<0.001
Body mass index	1.34 (1.28 - 1.40)	<0.001
Waist circumference	1.39 (1.33 - 1.45)	<0.001
Current smoker	1.22 (1.10 - 1.36)	<0.001
Heavy alcohol drink	1.29 (1.11 - 1.50)	<0.001
Regular physical activity	0.93 (0.84 - 1.02)	0.127
Family history of diabetes	1.43 (1.24 - 1.65)	<0.001
Hypertension	2.10 (1.87 - 2.37)	<0.001
Hyperlipidemia	1.38 (1.18 - 1.60)	<0.001
Cardiovascular disease	1.17 (0.85 - 1.62)	0.329
Chronic kidney disease	1.45 (1.08 - 1.94)	0.013
Fatty liver	2.22 (2.00 - 2.45)	<0.001
Systolic blood pressure	1.33 (1.27 - 1.39)	<0.001
Diastolic blood pressure	1.29 (1.23 - 1.35)	<0.001
Fasting plasma glucose	1.67 (1.60 - 1.74)	<0.001
2-hour post-load glucose	2.28 (2.17 - 2.39)	<0.001
Fasting serum insulin	1.06 (1.03 - 1.10)	<0.001

Glycated hemoglobin	2.13 (2.02 - 2.24)	<0.001
Total cholesterol	1.20 (1.14 - 1.26)	<0.001
HDL cholesterol	0.81 (0.77 - 0.85)	<0.001
Triglycerides	1.35 (1.30 - 1.39)	<0.001
Sampson-NIH2 LDL cholesterol	1.08 (1.03 - 1.14)	0.001
Non-HDL cholesterol	1.27 (1.22 - 1.34)	<0.001
Remnant cholesterol	1.36 (1.31 - 1.40)	<0.001
Blood urea nitrogen	1.06 (1.01 - 1.11)	0.015
Creatinine	1.06 (1.02 - 1.10)	0.002
eGFR	0.95 (0.90 - 1.00)	0.033
Aspartate aminotransferase	1.09 (1.06 - 1.12)	<0.001
Alanine aminotransferase	1.13 (1.11 - 1.16)	<0.001
γ -glutamyl transpeptidase	1.12 (1.10 - 1.14)	<0.001

Data are expressed as hazard ratios with 95% confidence intervals. HRs for continuous variables are presented per 1-SD increase. eGFR: Estimated glomerular filtration rate; HDL: High density lipoprotein; LDL: Low density lipoprotein.

Supplemental Table 3 Correlations of remnant cholesterol with indices of insulin secretion, insulin sensitivity, and inflammatory markers

	<i>r</i> value	<i>P</i> value
Insulin secretory indices		
HOMA- β %	0.154	<0.001
Insulinogenic index 60 min	0.070	<0.001
Disposition index	-0.068	<0.001
Insulin sensitivity indices		
HOMA-IR	0.173	<0.001
Matsuda index	0.227	<0.001
Inflammatory markers		
White blood cell counts	0.215	<0.001
C-reactive protein	0.169	<0.001

HOMA- β %: Homeostasis model assessment of β -cell function; HOMA-IR: Homeostasis model assessment of insulin resistance.