SUPPLEMENTARY METHODS

1. Definitions and assessments

Height and body weight were assessed using a digital scale, and body mass index (BMI) was calculated through the formula: BMI=body weight (kg)/height squared (m^2). Waist circumference was measured by a trained examiner using a tape measure to the nearest millimeter at the midpoint between the lower margin of the least palpable rib and the top of the iliac crest. Systolic and diastolic blood pressures were measured twice in one day, and their mean values were used for this study. The definition of hypertension is a systolic blood pressure ≥140 mm Hg and/or a diastolic blood pressure ≥90 mm Hg, or when taking antihypertensive medication. Type 2 diabetes mellitus (DM) is defined as a fasting blood sugar ≥126 mg/dL, hemoglobin A1c (HbA1c) ≥6.5%, or when taking DM medication. Dyslipidemia is defined as a plasma triglyceride ≥150 mg/dL, plasma high density lipoprotein cholesterol ≤40 mg/dL for men and ≤50 mg/dL for women, or taking lipid lowering treatment.

2. Diagnostic criteria for NAFLD

To define nonalcoholic fatty liver disease (NAFLD), two key criteria must be met: (1) the presence of hepatic steatosis, confirmed through either imaging or histology, and (2) the absence of secondary factors responsible for hepatic fat accumulation, such as considerable alcohol consumption, prolonged usage of steatogenic medications, or underlying monogenic hereditary disorders.

3. Diagnostic criteria for MAFLD

To diagnose metabolic dysfunction-associated fatty liver disease (MAFLD), hepatic steatosis is confirmed through evidence of liver fat accumulation using histological (biopsy), imaging, or blood biomarkers. Alongside this, one of the three subsequent criteria must be fulfilled: overweight/obesity, the presence of type 2 DM, or signs of metabolic dysregulation. This dysregulation is characterized by the existence of at least two metabolic risk abnormalities as described below.

- Waist circumference ≥90/80 cm in Asian men and women
- Blood pressure ≥130/85 mm Hg or specific drug treatment
- Plasma triglycerides ≥150 mg/dL (≥1.70 mmol/L) or specific drug treatment
- Plasma high density lipoprotein cholesterol <40 mg/dL (<1.0 mmol/L) for men and <50 mg/dL (<1.3 mmol/L) for women or specific drug treatment
- Prediabetes (i.e., fasting glucose levels 100 to 125 mg/dL [5.6 to 6.9 mmol/L] or 2-hour post-load glucose levels 140 to 199 mg/dL [7.8 to 11.0 mmol] or HbA1c 5.7% to 6.4% [39 to 47 mmol/mol])
- Homeostasis model assessment of insulin resistance score ≥2.5
- Plasma high-sensitivity C-reactive protein level >2 mg/L

4. Diagnostic criteria for MASLD

A diagnosis of metabolic dysfunction-associated steatotic liver disease (MASLD) can be established when hepatic steatosis is detected and at least one of the described cardiovascular metabolic risk factors below is identified, provided there are no other causes of hepatic steatosis.

- BMI ≥23 kg/m^2 or waist circumference ≥90/80 cm in Asian men and women
- Fasting serum glucose ≥100 mg/dL (5.6 mmol/L) or 2-hour post-load glucose levels ≥140 mg/dL (7.8 mmol/L) or HbA1c 5.7% (39 mmol/L) or type 2 diabetes or treatment for type 2 diabetes
- Blood pressure ≥130/85 mm Hg or specific antihypertensive drug treatment
- Plasma triglyceride ≥150 mg/dL (1.70 mmol/L), or lipid lowering treatment
- Plasma high density lipoprotein cholesterol ≤40 mg/dL (1.0 mmol/L) for men and ≤50 mg/dL (1.3 mmol/L) for women or lipid lowering treatment

Supplementary Table 1. Baseline Characteristics of the NAFLD Cohort

Variable	Non-NAFLD group (n=2,232)	NAFLD group (n=1,418)	p-value
Age, yr	56.0 (47.0–65.0)	59.0 (52.0–67.0)	<0.001
Sex			<0.001
Female	1,846 (87.7)	947 (66.8)	
Male	386 (17.3)	471 (33.2)	
Waist circumference, cm	78.0 (73.0–83.5)	87.0 (82.0–92.5)	<0.001
Body mass index, kg/m^2	20.9 (19.2–22.6)	24.2 (22.4–26.3)	<0.001
Bodyfat, kg	14.8 (11.8–18.1)	20.2 (17.1–24.1)	<0.001
Visceral fat, cm^2	72.8 (55.4–90.2)	97.7 (83.2–114.1)	<0.001
Muscle, kg	20.4 (18.7–22.7)	22.4 (20.0–28.4)	<0.001
Diabetes mellitus			<0.001
Absent	1,568 (70.3)	654 (46.1)	
Present	664 (29.7)	764 (53.9)	
Hypertension			<0.001
Absent	1,875 (84.0)	1,016 (71.7)	
Present	357 (16.0)	402 (28.3)	
Dyslipidemia			<0.001
Absent	1,468 (65.8)	554 (39.1)	
Present	764 (34.2)	864 (60.9)	

Data are presented median (interquartile range) or number (%).

NAFLD, nonalcoholic fatty liver disease.

Supplementary Table 2. Baseline Characteristics of the MAFLD Cohort

Variable	Non-MAFLD group (n=2,442)	MAFLD group (n=1,208)	p-value
Age, yr	56.0 (47.0–65.0)	60.0 (52.0–68.0)	<0.001
Sex			<0.001
Female	2,014 (82.5)	779 (64.5)	
Male	428 (17.5)	429 (35.5)	
Waist circumference, cm	78.0 (73.0–83.0)	88.3 (84.0–93.6)	<0.001
Body mass index, kg/m^2	20.9 (19.3–22.5)	24.8 (23.3–26.7)	<0.001
Bodyfat, kg	15.0 (12.0–18.2)	21.0 (17.9–25.1)	<0.001
Visceral fat, cm^2	73.4 (56.2–90.0)	101.2 (87.1–117.8)	<0.001
Muscle, kg	20.4 (18.7–22.7)	22.9 (20.3–29.2)	<0.001
Diabetes mellitus			<0.001
Absent	1,778 (72.8)	444 (36.8)	
Present	664 (27.2)	764 (63.2)	
Hypertension			<0.001
Absent	2,074 (84.9)	817 (67.6)	
Present	368 (15.1)	391 (32.4)	
Dyslipidemia			<0.001
Absent	1,602 (65.6)	420 (34.8)	
Present	840 (34.4)	788 (65.2)	

Data are presented median (interquartile range) or number (%).
MAFLD, metabolic dysfunction-associated fatty liver disease.

Supplementary Table 3. Baseline Characteristics of the MASLD Cohort

Variable	Non-MASLD group (n=2,345)	MASLD group (n=1,305)	p-value
Age, yr	56.0 (47.0–65.0)	60.0 (52.0–68.0)	<0.001
Sex			<0.001
Female	1,935 (82.5)	858 (65.7)	
Male	410 (17.5)	447 (34.3)	
Waist circumference, cm	78.0 (73.0–83.0)	88.0 (83.0–93.0)	<0.001
Body mass index, kg/m^2	20.9 (19.3–22.6)	24.5 (22.9–26.4)	<0.001
Bodyfat, kg	14.8 (11.9–18.1)	20.5 (17.5–24.5)	<0.001
Visceral fat, cm^2	73.0 (55.6–90.0)	99.4 (85.2–116.1)	<0.001
Muscle, kg	20.4 (18.7–22.7)	22.6 (20.1–28.7)	<0.001
Diabetes mellitus			<0.001
Absent	1,681 (71.7)	541 (41.5)	
Present	664 (28.3)	764 (58.5)	
Hypertension			<0.001
Absent	1,988 (84.8)	903 (69.2)	
Present	357 (15.2)	402 (30.8)	
Dyslipidemia			<0.001
Absent	1,581 (67.4)	441 (33.8)	
Present	764 (32.6)	864 (66.2)	

Data are presented median (interquartile range) or number (%).

MASLD, metabolic dysfunction-associated steatotic liver disease.

Supplementary Table 4. Predictive Values of Steatotic Liver Disease in the NAFLD, MAFLD, and MASLD Cohorts: In Model 1*

Variable	Low cutoff point (<330)	Intermediate (330–400)	High cutoff point (>400)	Total No.
NAFLD				
Total	1,281 (35.1)	1,815 (49.7)	554 (15.2)	3,650
Steatotic liver disease	147 (10.4)	832 (45.8)	439 (79.2)	1,418
Sensitivity, % (95% CI)	89.6 (88.0–91.2)		31.0 (28.6–33.4)	
Specificity, % (95% CI)	50.8 (48.7–52.9)		94.8 (93.9–95.8)	
Positive likelihood ratio, (95% CI)	1.822 (1.741–1.907)		6.009 (4.948–7.297)	
Negative likelihood ratio, (95% CI)	0.204 (0.174–0.239)		0.728 (0.702–0.755)	
Positive predictive value, % (95% CI)			79.2 (75.9–82.6)	
Negative predictive value, % (95% CI)	88.5 (86.8–90.3)			
MAFLD				
Total	1,281 (35.1)	1,814 (49.7)	555 (15.2)	3,650
Steatotic liver disease	50 (3.9)	718 (39.6)	440 (79.3)	1,208
Sensitivity, % (95% CI)	95.9 (94.7–97.0)		36.4 (33.7–39.1)	
Specificity, % (95% CI)	50.4 (48.4–52.4)		95.3 (94.5–96.1)	
Positive likelihood ratio, (95% CI)	1.933 (1.854–2.015)		7.735 (6.375–9.384)	
Negative likelihood ratio, (95% CI)	0.082 (0.062–0.108)		0.667 (0.639–0.697)	
Positive predictive value, % (95% CI)			79.3 (75.9–82.7)	
Negative predictive value, % (95% CI)	96.1 (95.0–97.2)			
MASLD				
Total	1,281 (35.1)	1,815 (49.7)	554 (15.2)	3,650
Steatotic liver disease	88 (6.8)	823 (45.3)	439 (79.2)	1,350
Sensitivity, % (95% CI)	93.3 (91.9–94.6)		33.6 (31.1–36.2)	
Specificity, % (95% CI)	50.9 (48.9–52.9)		95.1 (94.2–96.0)	
Positive likelihood ratio, (95% CI)	1.898 (1.817–1.983)		6.860 (5.651–8.327)	
Negative likelihood ratio, (95% CI)	0.133 (0.108–0.163)		0.698 (0.671–0.726)	
Positive predictive value, % (95% CI)			79.2 (75.9–82.6)	
Negative predictive value, % (95% CI)	93.1 (91.7–94.5)			

Data are presented as number (%) unless indicated otherwise.

NAFLD, nonalcoholic fatty liver disease; MAFLD, metabolic dysfunction-associated fatty liver disease; MASLD, metabolic dysfunction-associated steatotic liver disease; CI, confidence interval.

*Model 1: age+13×body mass index (+3, if male; +3, if diabetes mellitus; +2, if dyslipidemia).

Supplementary Table 5. Predictive Values of Steatotic Liver Disease in the NAFLD, MAFLD, and MASLD Cohorts: In Model 2*

Variable	Low cutoff point (<100)	Intermediate (100–125)	High cutoff point (>125)	Total No.
NAFLD				
Total	1,418 (38.8)	1,823 (49.5)	409 (11.2)	3,650
Steatotic liver disease	176 (12.4)	903 (49.8)	339 (82.9)	1,418
Sensitivity, % (95% CI)	87.6 (85.9–89.3)		23.9 (21.7–26.1)	
Specificity, % (95% CI)	55.6 (53.6–57.7)		96.9 (96.1–97.6)	
Positive likelihood ratio, (95% CI)	1.975 (1.878–2.077)		7.623 (5.945–9.774)	
Negative likelihood ratio, (95% CI)	0.223 (0.193–0.257)		0.786 (0.762–0.810)	
Positive predictive value, % (95% CI)			82.9 (79.2–86.5)	
Negative predictive value, % (95% CI)	87.6 (85.9–89.3)			
MAFLD				
Total	1,418 (38.8)	1,823 (49.9)	409 (11.2)	3,650
Steatotic liver disease	77 (5.4)	782 (42.9)	339 (82.9)	1,208
Sensitivity, % (95% CI)	93.6 (92.2–95.0)		28.1 (25.5–30.6)	
Specificity, % (95% CI)	54.9 (52.9–56.9)		97.1 (96.5–97.8)	
Positive likelihood ratio, (95% CI)	2.077 (1.983–2.175)		9.790 (7.640–12.544)	
Negative likelihood ratio, (95% CI)	0.116 (0.093–0.145)		0.741 (0.715–0.768)	
Positive predictive value, % (95% CI)			82.9 (79.2–86.5)	
Negative predictive value, % (95% CI)	94.6 (93.4–95.7)			
MASLD				
Total	1,418 (38.8)	1,823 (49.9)	409 (11.2)	3,650
Steatotic liver disease	116 (8.2)	895 (49.1)	339 (82.9)	1,350
Sensitivity, % (95% CI)	91.1 (89.6–92.7)		26.0 (23.6–28.4)	
Specificity, % (95% CI)	55.5 (53.5–57.5)		97.0 (96.3–97.7)	
Positive likelihood ratio, (95% CI)	2.048 (1.952–2.150)		8.702 (6.789–11.154)	
Negative likelihood ratio, (95% CI)	0.160 (0.134–0.191)		0.763 (0.738–0.789)	
Positive predictive value, % (95% CI)			82.9 (79.2–86.5)	
Negative predictive value, % (95% CI)	91.8 (90.4–93.2)			

Data are presented as number (%) unless indicated otherwise.

NAFLD, nonalcoholic fatty liver disease; MAFLD, metabolic dysfunction-associated fatty liver disease; MASLD, metabolic dysfunction-associated steatotic liver disease; CI, confidence interval.

*Model 2: 4.5×body mass index+3.5×body fat mass per muscle mass (+4, if male; +1.5, if diabetes mellitus; +1, if dyslipidemia).

Supplementary Table 6. Predictive Values of Steatotic Liver Disease in the NAFLD, MAFLD, and MASLD Cohorts: In Model 3*

Variable	Low cutoff point (<125)	Intermediate (125–155)	High cutoff point (>155)	Total No.
NAFLD				
Total	1,357 (37.2)	1,815 (47.5)	478 (13.1)	3,650
Steatotic liver disease	163 (12.0)	862 (49.8)	393 (82.2)	1,418
Sensitivity, % (95% CI)	88.5 (86.8–90.2)		27.7 (25.4–30.0)	
Specificity, % (95% CI)	53.5 (51.4–55.6)		96.2 (95.4–97.0)	
Positive likelihood ratio, (95% CI)	1.903 (1.813–1.997)		7.278 (5.812–9.112)	
Negative likelihood ratio, (95% CI)	0.215 (0.185–0.250)		0.751 (0.727–0.777)	
Positive predictive value, % (95% CI)			82.2 (78.8–85.6)	
Negative predictive value, % (95% CI)	88.0 (86.3–89.7)			
MAFLD				
Total	1,357 (37.2)	1,815 (41.3)	478 (11.1)	3,650
Steatotic liver disease	66 (4.9)	749 (41.3)	393 (82.2)	1,208
Sensitivity, % (95% CI)	94.5 (93.3–95.8)		32.5 (29.9–35.2)	
Specificity, % (95% CI)	52.9 (50.9–54.8)		96.5 (95.8–97.2)	
Positive likelihood ratio, (95% CI)	2.006 (1.919–2.096)		9.347 (7.470–11.694)	
Negative likelihood ratio, (95% CI)	0.103 (0.081–0.131)		0.699 (0.672–0.727)	
Positive predictive value, % (95% CI)			82.2 (78.8–85.6)	
Negative predictive value, % (95% CI)	95.1 (94.0–96.3)			
MASLD				
Total	1,357 (37.2)	1,815 (49.7)	478 (13.1)	3,650
Steatotic liver disease	106 (7.8)	851 (63.0)	393 (82.2)	1,350
Sensitivity, % (95% CI)	91.9 (90.4–93.4)		30.1 (27.6–32.6)	
Specificity, % (95% CI)	53.3 (51.3–55.4)		96.4 (95.6–97.1)	
Positive likelihood ratio, (95% CI)	1.969 (1.881–2.063)		8.308 (6.638–10.399)	
Negative likelihood ratio, (95% CI)	0.152 (0.126–0.183)		0.725 (0.699–0.752)	
Positive predictive value, % (95% CI)			82.2 (78.8–85.6)	
Negative predictive value, % (95% CI)	92.2 (90.8–93.6)			

Data are presented as number (%) unless indicated otherwise.

NAFLD, nonalcoholic fatty liver disease; MAFLD, metabolic dysfunction-associated fatty liver disease; MASLD, metabolic dysfunction-associated steatotic liver disease; CI, confidence interval.

*Model 3: 5.5×body mass index+2.0×visceral fat area per muscle mass (+3, if male; +1.5, if diabetes mellitus; +1, if dyslipidemia).

Supplementary Table 7. Baseline Characteristics of the External Validation Cohort

Variable	Non-SLD group (n=149,214)	SLD group (n=79,948)	p-value
Age, yr	41.5 (35.9–47.3)	44.0 (38.8–49.6)	<0.001
Sex			<0.001
Female	85,634 (57.4)	16,495 (20.6)	
Male	63,580 (42.6)	63,453 (79.6)	
Waist circumference, cm	77.4 (71.4–83.4)	89.0 (84.2–94.5)	<0.001
Body mass index, kg/m^2	22.2 (20.4–24.1)	26.0 (24.2–28.2)	<0.001
Bodyfat, kg	15.5 (12.7–18.8)	20.9 (17.4–25.5)	<0.001
Visceral fat, cm^2	65.4 (52.9–83.4)	90.3 (73.3–115.6)	<0.001
Muscle, kg	23.5 (20.5–30.5)	31.5 (27.6–34.6)	<0.001
Diabetes mellitus			<0.001
Absent	144,250 (96.7)	69,193 (86.5)	
Present	4,964 (3.3)	10,755 (13.5)	
Hypertension			<0.001
Absent	134,101 (89.9)	61,717 (77.2)	
Present	15,113 (10.1)	18,231 (22.8)	
Dyslipidemia			<0.001
Absent	120,660 (80.9)	34,946 (43.7)	
Present	28,554 (19.1)	45,002 (56.3)	
Alcohol consumption			<0.001
Below threshold*	135,970 (91.1)	69,777 (87.3)	
Above threshold*	13,244 (8.9)	10,171 (12.7)	

Data are presented as median (interquartile range) or number (%).

SLD, steatotic liver disease.

*140 g/wk for females and 210 g/wk for males.

Supplementary Table 8. Predictive Values of Steatotic Liver Disease in the External Validation Cohort int the Model 1*

The external validation cohort	Low cutoff point (<330)	Intermediate (330–400)	High cutoff point (>400)	Total No.
Total	73,968 (32.3)	117,729 (51.4)	37,465 (16.3)	229,162
Steatotic liver disease	3,575 (4.8)	46,483 (39.5)	29,890 (79.8)	79,948
Sensitivity, % (95% CI)	95.5 (95.4–95.7)		37.4 (37.1–37.7)	
Specificity, % (95% CI)	47.2 (46.9–47.4)		94.9 (94.8–95.0)	
Positive likelihood ratio, (95% CI)	1.808 (1.799–1.818)		7.365 (7.192–7.541)	
Negative likelihood ratio, (95% CI)	0.095 (0.092–0.098)		0.660 (0.656–0.663)	
Positive predictive value, % (95% CI)			79.8 (79.4–80.2)	
Negative predictive value, % (95% CI)	95.2 (95.0–95.3)			

Data are presented as number (%) or unless indicated otherwise.

CI, confidence interval.

*Model 1: age+13×body mass index (+3, if male; +3, if diabetes mellitus; +2, if dyslipidemia).

Supplementary Table 9. Predictive Values of Steatotic Liver Disease in the External Validation Cohort int the Model 2*

The external validation cohort	Low cutoff point (<100)	Intermediate (100–125)	High cutoff point (>125)	Total No.
Total	72,253 (31.5)	120,641 (52.6)	36,268 (15.8)	229,162
Steatotic liver disease	3,440 (4.8)	47,273 (39.2)	29,235 (80.6)	79,948
Sensitivity, % (95% CI)	95.7 (95.6–95.8)		36.6 (36.2–36.9)	
Specificity, % (95% CI)	46.1 (45.9–46.4)		95.3 (95.2–95.4)	
Positive likelihood ratio, (95% CI)	1.829 (1.818–1.839)		7.758 (7.570–7.951)	
Negative likelihood ratio, (95% CI)	0.091 (0.088–0.095)		0.666 (0.662–0.669)	
Positive predictive value, % (95% CI)			80.6 (80.2–81.0)	
Negative predictive value, % (95% CI)	95.2 (95.1–95.4)			

Data are presented as number (%) unless indicated otherwise.

CI, confidence interval.

*Model 2: 4.5×body mass index+3.5×body fat mass per muscle mass (+4, if male; +1.5, if diabetes mellitus; +1, if dyslipidemia).

Supplementary Table 10. Predictive Values of Steatotic Liver Disease in the External Validation Cohort int the Model 3*

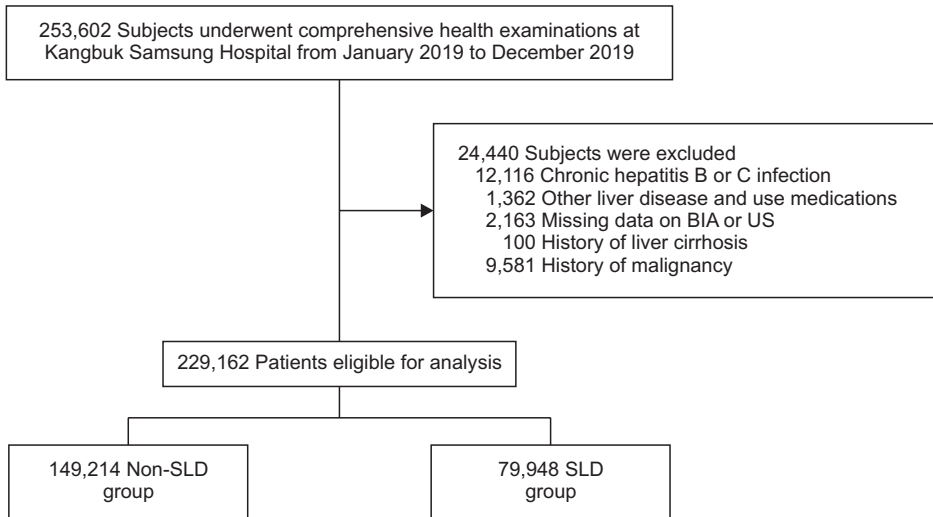| The external validation cohort	Low cutoff point (<125)	Intermediate (125–155)	High cutoff point (>155)	Total No.
Total	61,715 (26.9)	121,230 (52.9)	46,217 (20.2)	229,162
Steatotic liver disease	2,406 (3.9)	42,270 (34.9)	35,272 (76.3)	79,948
Sensitivity, % (95% CI)	97.0 (96.9–97.1)		44.1 (43.8–44.5)	
Specificity, % (95% CI)	39.7 (39.5–40.0)		92.7 (92.5–92.8)	
Positive likelihood ratio, (95% CI)	1.610 (1.603–1.617)		6.015 (5.898–6.134)	
Negative likelihood ratio, (95% CI)	0.076 (0.073–0.079)		0.603 (0.599–0.607)	
Positive predictive value, % (95% CI)			76.3 (75.9–76.7)	
Negative predictive value, % (95% CI)	96.1 (95.9–96.3)			

Data are presented as number (%) unless indicated otherwise.

CI, confidence interval.

*Model 3: 5.5×body mass index+2.0×visceral fat area per muscle mass (+3, if male; +1.5, if diabetes mellitus; +1, if dyslipidemia).
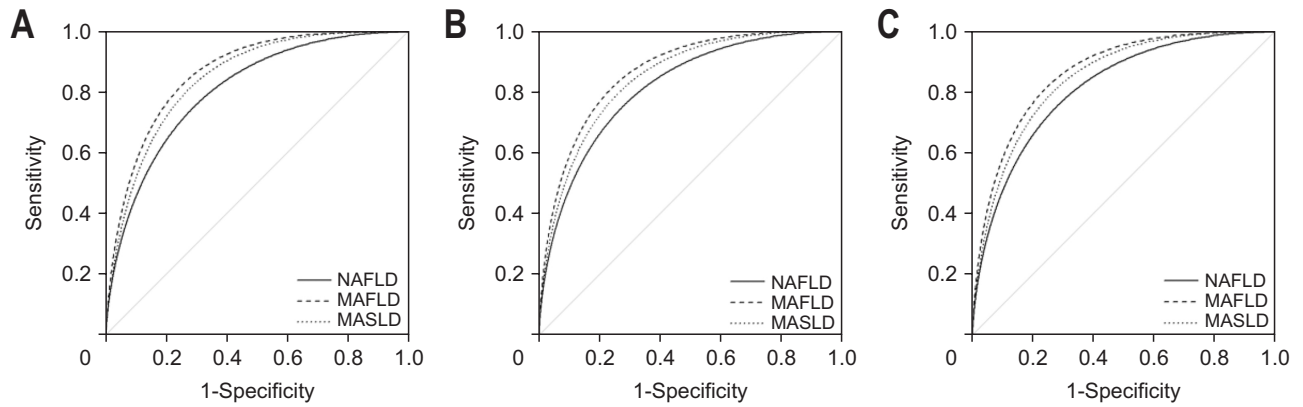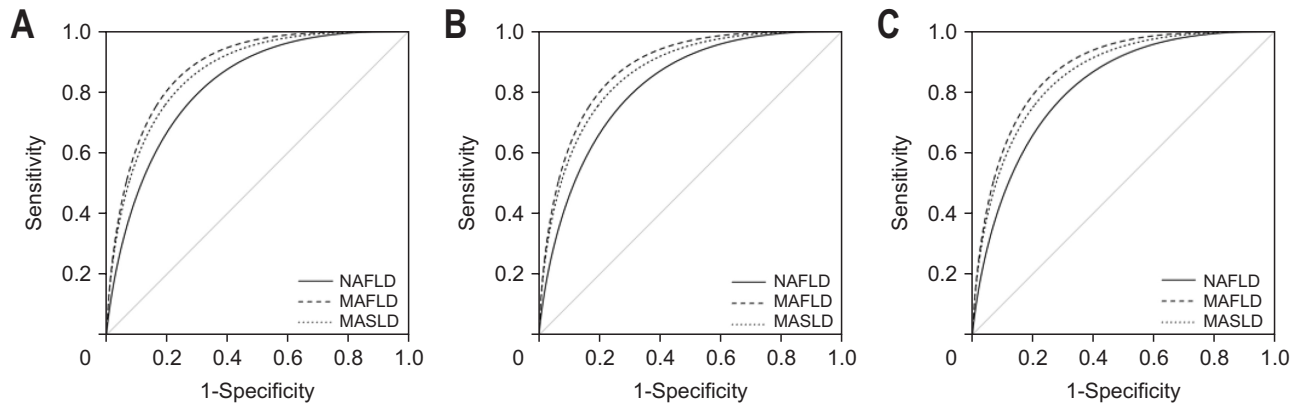
Supplementary Fig. 1. Receiver operating characteristic curve of prediction model for detecting NAFLD, MAFLD, and MASLD. (A) The AUROC was 0.811 (95% CI, 0.797 to 0.825) for NAFLD, 0.870 (95% CI, 0.859 to 0.882) for MAFLD, and 0.845 (95% CI, 0.832 to 0.857) for MASLD detection in SLD model 1. (B) The AUROC was 0.820 (95% CI, 0.806 to 0.834) for NAFLD, 0.875 (95% CI, 0.864 to 0.887) for MAFLD, and 0.851 (95% CI, 0.838 to 0.863) for MASLD detection in SLD model 2. (C) The AUROC was 0.819 (95% CI, 0.806 to 0.833) for NAFLD, 0.874 (95% CI, 0.862 to 0.885) for MAFLD, and 0.850 (95% CI, 0.838 to 0.863) for MASLD detection in SLD model 3. NAFLD, nonalcoholic fatty liver disease; MAFLD, metabolic dysfunction-associated fatty liver disease; MASLD, metabolic dysfunction-associated steatotic liver disease; AUROC, areas under the receiver operating characteristic; CI, confidence interval; SLD, steatotic liver disease.

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│ 253,602 Subjects underwent comprehensive health examinations at │
│ Kangbuk Samsung Hospital from January 2019 to December 2019     │
└─────────────────────────────────────────────────────────────┘
                    │
                    │      ┌────────────────────────────────────────────────┐
                    ├─────▶│ 24,440 Subjects were excluded                   │
                    │      │    12,116 Chronic hepatitis B or C infection    │
                    │      │     1,362 Other liver disease and use medications│
                    │      │     2,163 Missing data on BIA or US             │
                    │      │       100 History of liver cirrhosis            │
                    │      │     9,581 History of malignancy                 │
                    │      └────────────────────────────────────────────────┘
                    │
          ┌───────────────────────────────────┐
          │ 229,162 Patients eligible for analysis │
          └───────────────────────────────────┘
                    │
        ┌───────────┴───────────┐
┌────────────────┐      ┌────────────────┐
│ 149,214 Non-SLD │      │  79,948 SLD    │
│     group       │      │    group       │
└────────────────┘      └────────────────┘
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Supplementary Fig. 2. Flow diagram of patient selection for the external validation. Among 253,602 subjects, 24,440 were excluded due to factors potentially inducing other liver diseases. Out of the 24,440 individuals excluded, 859 met more than two of the exclusion criteria. Consequently, a total of 229,162 subjects were included in this study; 149,214 were classified into the non-SLD group, and 79,948 into the SLD group. BIA, bioelectrical impedance analysis; US, ultrasound sonography; SLD, steatotic liver disease.
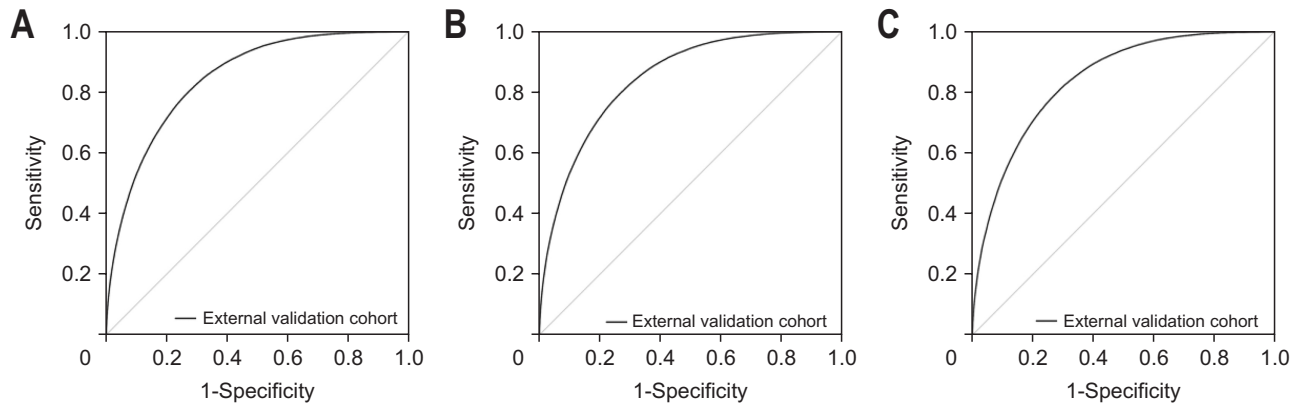
Supplementary Fig. 3. Receiver operating characteristic curve of prediction model for detecting SLD in the external validation cohort. The AUROC of (A) SLD model 1 was 0.847 (95% CI, 0.846 to 0.849), (B) SLD model 2 was 0.848 (95% CI, 0.846 to 0.849), and (C) SLD model 3 was 0.842 (95% CI, 0.840 to 0.844) in the external validation cohort for detecting SLD. AUROC, area under the receiver operating characteristic; SLD, steatotic liver disease; CI, confidence interval.

Supplementary Fig. 4. Receiver operating characteristic curve of prediction model for detecting NAFLD, MAFLD, and MASLD in the external validation. (A) The AUROC was 0.821 (95% CI, 0.819 to 0.822) for NAFLD, 0.878 (95% CI, 0.876 to 0.879) for MAFLD, and 0.862 (95% CI, 0.861 to 0.864) for MASLD detection in SLD model 1. (B) The AUROC was 0.820 (95% CI, 0.818 to 0.822) for NAFLD, 0.878 (95% CI, 0.877 to 0.880) for MAFLD, and 0.862 (95% CI, 0.861 to 0.864) for MASLD detection in SLD model 2. (C) The AUROC was 0.817 (95% CI, 0.815 to 0.818) for NAFLD, 0.874 (95% CI, 0.872 to 0.875) for MAFLD, and 0.857 (95% CI, 0.855 to 0.858) for MASLD detection in SLD model 3. NAFLD, nonalcoholic fatty liver disease; MAFLD, metabolic dysfunction-associated fatty liver disease; MASLD, metabolic dysfunction-associated steatotic liver disease; AUROC, areas under the receiver operating characteristic; CI, confidence interval; SLD, steatotic liver disease.
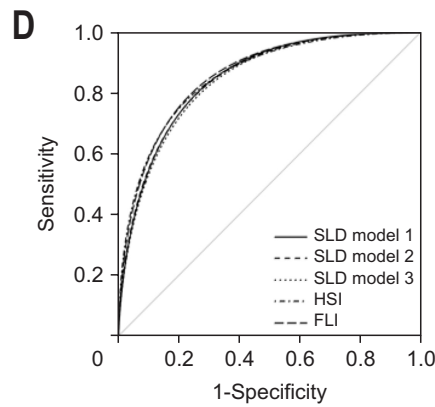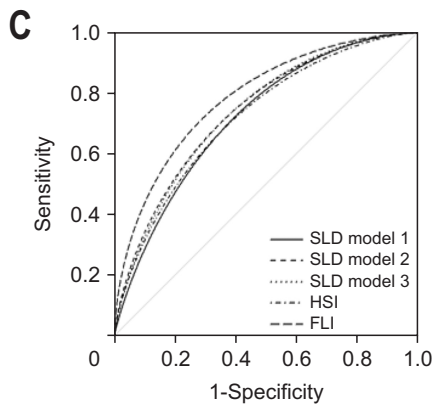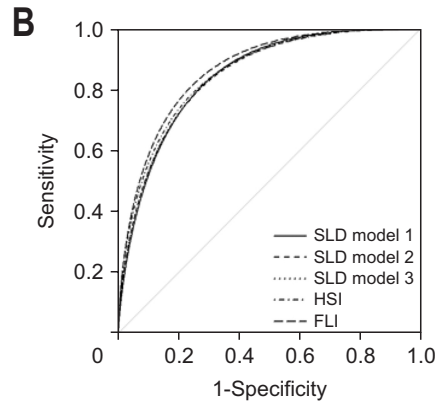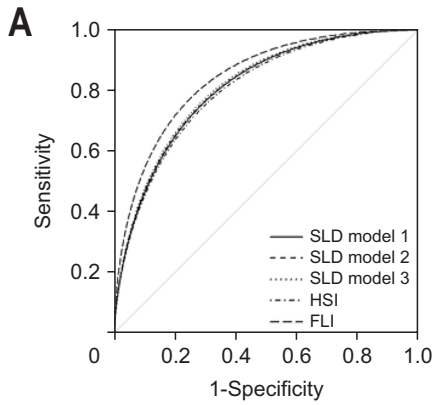
Supplementary Fig. 5. Comparison of HSI, FLI, and SLD models. (A) The AUROC was 0.827 (95% CI, 0.821 to 0.832) in HSI and 0.849 (95% CI, 0.844 to 0.854) in FLI prediction for SLD. (B) The AUROC was 0.864 (95% CI, 0.852 to 0.876) in HSI and 0.866 (95% CI, 0.854 to 0.877) in FLI prediction for MASLD. (C) The AUROC was 0.743 (95% CI, 0.732 to 0.754) in SLD model 1, 0.747 (95% CI, 0.736 to 0.758) in SLD model 2, 0.744 (95% CI, 0.733 to 0.756) in SLD model 3, 0.742 (95% CI, 0.730 to 0.754) in HSI, and 0.792 (95% CI, 0.781 to 0.803) in FLI prediction for lean SLD. (D) The AUROC was 0.862 (95% CI, 0.860 to 0.863) in HSI and 0.865 (95% CI, 0.863 to 0.866) in FLI prediction for SLD in the external validation. FLI, Fatty Liver Index; HSI, Hepatic Steatosis Index; SLD, steatotic liver disease; AUROC, areas under the receiver operating characteristic; CI, confidence interval; MASLD, metabolic dysfunction-associated steatotic liver disease.